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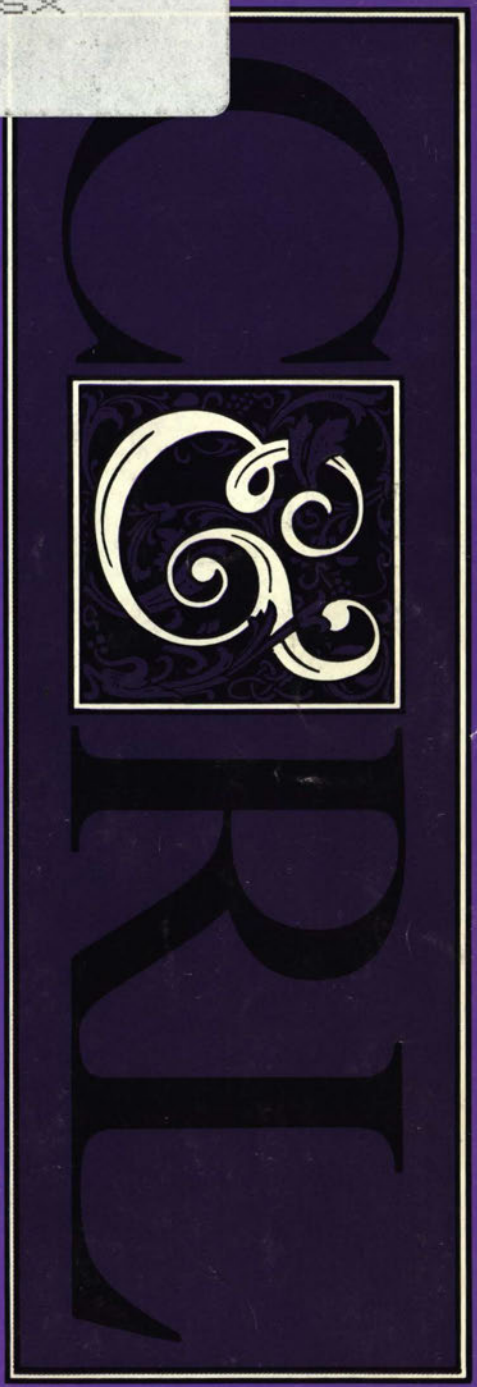

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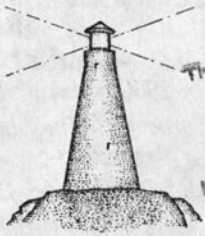

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Editorial

Choosing to Choose

"For lack of getting out of it, I have *chosen* it."—Jean-Paul Sartre*

In "The Coming Contest" (*College & Research Libraries* 54 [Nov. 1993]: 458–60), Ross Atkinson predicts that the needs of primary academic library users will eventually be met either by specialty scholarly publisher *or* by libraries. His editorial reflects an ongoing debate between alarmists, for whom he speaks, and equilibrists who believe that the status quo can be maintained in spite of environmental changes. This editorial, commenting on the future of the book and entitlement in academia, provides another alarmist view of the future of libraries.

The future of the book: The opening alarmist volley contends that libraries are probably going out of business, not so much because we should go out of business but because we are failing to understand our business well enough to maintain it. The equilibrists respond that F. W. Lancaster's prediction of a paperless society by the year 2000 certainly was inaccurate and that libraries will survive in the same way and for the same reasons. Elaborate and well-intentioned claims to the contrary, the equilibrists note, microform did not replace books, nor will the compact disc. The quintessential failed format (the betamax videocassette) is now virtually useless because players are no longer available. Few will argue that the book, a highly perfected form, will be entirely replaced. However, the convenience, flexibility, and stability of the book as an artifact will not necessarily save libraries.

Further, the equilibrists continue, most scholars hate reading from the computer screen and regularly print documents over three pages long. Little money will be saved for colleges and universities if mass-produced pages of journal articles are printed for every user. Clearly, the alarmists note, this whole part of the revolution is awaiting the development of a book-sized, high-contrast, hand-held, battery-powered computer for reading books and articles on disk. While many will miss the sensual aspects of the book—paper texture, ink smell, type aesthetics—many will rejoice in the ability to pack one reader and several disks in their vacation baggage. For those vacationing on remote beaches, longer-lasting batteries will be essential; such batteries are probably the current constraint in the development of this new high-tech toy. However, the average librarian's PC now contains the power of two or three 1970's room-sized computers. Without waiting for debate or decision, technology advances.

Working with a two- or three-generation time line to allow for complete resocialization, the alarmists predict that most materials, including archival files of handwritten working papers, will be available for retrieval via the Internet and its successors. Although the process of scanning will be lengthy and probably eventually incomplete, scholars in many disciplines will find that most of their information needs can be met electronically.

Entitlement: The equilibrists argue that libraries are sacred to the academy and will be maintained for sentiment if for no other reason. Dean of the University of Michigan School of Information and Li-

brary Studies Dan E. Atkins recently referred to this status as an *entitlement*, a word undergoing rapid pejoration. Foundering academic institutions sense their own dangers and will make whatever cuts are necessary to retain what their administrators perceive as the essence. Increasingly, universities are outsourcing campus food services, bookstores, and photocopying to commercial enterprises. When an information vendor can promise academic administrators that students and faculty will be able to find most materials needed through a network in a more convenient mode available around the clock for a set fee (less than the entire budget of the library), how will the administrators respond? Some will recognize the possible emptiness of the promise and the probable escalation of the fees if the service is successful. As they did with bookstores, the alarmists note, others will see the reduced liability of having fewer employees with escalating benefits, less space accruing deferred maintenance, and declining need for support services.

Institutions in transition, and alarmists think colleges and universities may be just such institutions, sense their own dangers and will make decisions to ensure survival. Equilibrists believe that administrators will automatically recognize that the library is a part of the institution's educational mission. These administrators will ignore an opportunity for cost savings out of respect for past traditions.

For alarmists, economics is a driving force behind the creation and continuation of libraries. Neither the typical student nor the typical institution could afford to purchase all the books and articles necessary for the learning process. Sharing of institutionally owned materials among students and faculty, and among institutions themselves, allows broader and more affordable access as knowledge itself expands and publishing burgeons. Even the giant publishers and database vendors have only a small share of the total knowledge needed by a large university. While an institution with a limited curriculum, a nonresearch faculty, and no commitment to learning qua learning might be able to find a vendor to meet its students' primary needs, other institutions with broader configurations would have to deal with many, many information vendors and would still need to arrange for the use of additional resources just as even the largest research libraries currently must. Neither is the current environment nor in the forseeable future can one entity be envisioned as providing all information needed by users.

For these reasons, in some cases, economics could hold libraries in place if we focused, as Atkinson suggests, on high quality service. That would mean, however, that libraries would have to focus on measuring the quality of their services. Heeding instead of pettishly denigrating studies of reference accuracy, listening to complaints instead of excusing our services, and counting the costs of local cataloging variations from national standards and changing local practices would be required.

The equilibrists believe that they will receive a future analogous to their past; they need not exercise their freedom to choose. The alarmists believe that if we choose to understand our business, to serve our constituencies excellently, to know the interrelationships with the production and dissemination of knowledge, rather than to store books, then libraries might survive, albeit in much altered form. Some specific actions are needed:

- Librarians must be able to assess the effectiveness of their programs.
- Even though libraries have often ranked themselves as if they were warehouses, library associations must develop new, relevant standards.
- Librarians must communicate with administrators about the needs of the user community.
- Librarians must see themselves as sharing the environmental perils surrounding higher education.
- Librarians must understand and participate in the larger scholarly communications system.
- Librarians must listen to their users and change services appropriately.

Librarians must focus on the nature of librarianship itself—not the buildings, the salaries, the status, the collections, the archives, but the essential service—connecting users with information needed regardless of format or ownership. Librarians must choose between changing to be relevant and nothingness.

GLORIANA ST. CLAIR

REFERENCE

* Jean-Paul Sartre, *Being and Nothingness*, trans. Hazel Barnes (New York: The Citadel Press, 1969), 530.

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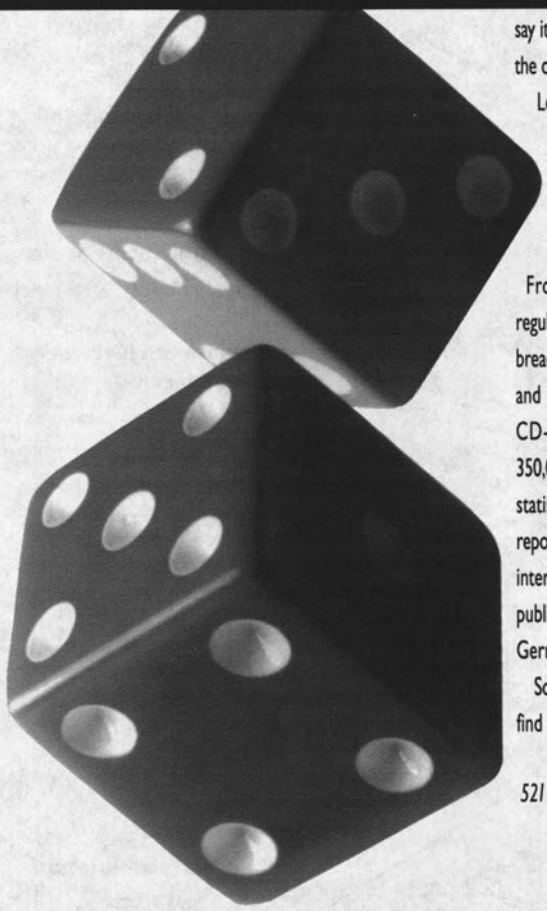

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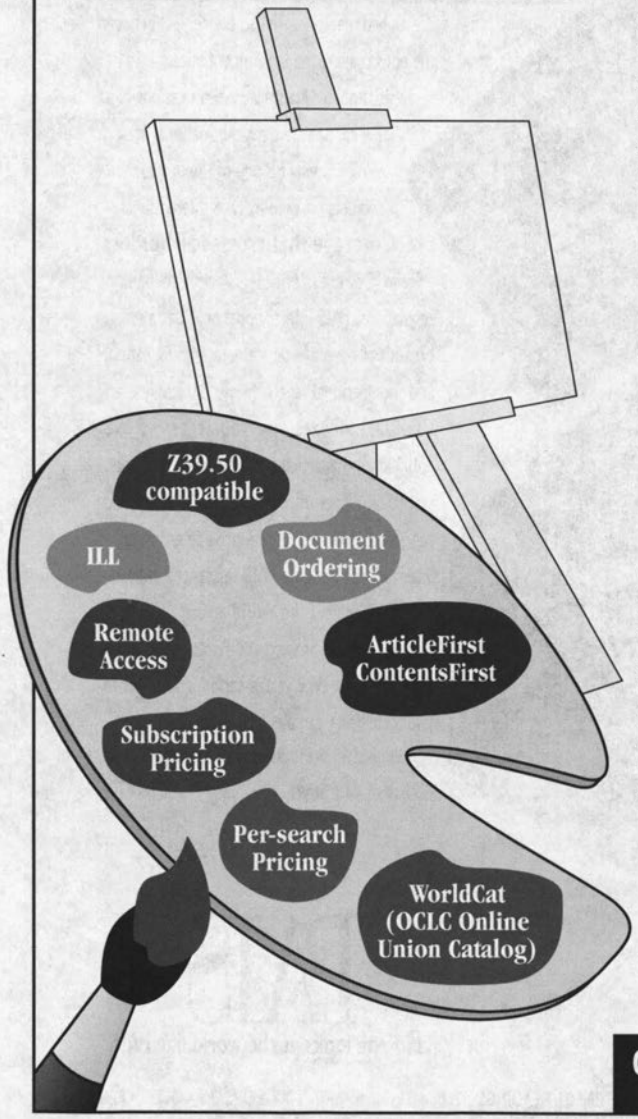

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Scientists' Access and Retrieval of References Cited in Their Recent Journal Articles

Julie Hallmark

Scientific authors of 319 articles in nineteen current research journals were asked to explain how they: (1) first became aware of a specific reference which they cited, and (2) how they subsequently obtained it. Disciplines represented in the study were chemistry, physics, mathematics, biology, and geology. Of several possible modes of access, personal contacts and references in the literature were most important. Actual retrieval occurred primarily through library subscriptions and copies from colleagues. Variations among disciplines appeared in the use of databases, current awareness services, and personal journals. Scientists' perceptions of problems with their journal literature and suggestions for improvement revealed some interesting ideas and a few misconceptions. Findings have implications for present and future roles played by the academic library in serving its scientific clientele.

Academic library administrators, science librarians, and scientists are deeply concerned about increases in scientific journal subscription costs and subsequent cuts in library holdings which are occurring across the United States. Affected by publisher-imposed price increases and unfavorable exchange rates, scientific serial prices continue to escalate. In September 1992 Faxon announced price increases for 1993 of 9.5 percent for titles published in the United States, 28.5 percent for non-United States published titles from publishers with fixed exchange rates, and 20.0 percent for non-United States published titles from publishers with non-fixed exchange rates.[1] In his analysis of serial price trends, Adrian Alexander provides subject categories with the highest average journal prices; chemistry heads the list at $828.08 followed by physics, physiology, science, microbiology, finance, mathematics, and astronomy.[2] As an excellent recent study from the Association of Research Libraries (ARL) observed, "Many speak of a 'serials crisis' at the heart of library difficulties today, and it is prices, and in particular science journal prices, that drive the crisis."[3]

Academic scientists have addressed the problem from several angles. Some have investigated the relative value of journals in their discipline. For example, research by H. H. Barschall and by Barschall and J. R. Arrington analyzed the cost-effectiveness of physics journals based on a ratio of cost per 1,000 characters and the impact factor.[4,5] The latter, developed by the Institute for Scientific Information, takes into account citation rates for the title, among other variables. Barschall

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found variations in the ratio of cost to impact of from 0.063 to 54, a factor of 850.

Some science departments have raised money for their journal collections through endowments or donations, while department chairs fight doggedly to maintain or to increase their share of the journal budget pie. We can certainly understand and sympathize with their concern; at stake is the primary journal, for more than 300 years the single most critical method of scientific communication and the official record of science.

Controversies abound. Librarians and users alike debate the merits of electronic access versus paper subscriptions, and many question the value to users of the academic library model which emphasizes access over holdings. Defensive administrators attempt to justify the latest round of cancellations. Publishers resent being used as examples of unreasonable price increases, and some think that the increasingly comprehensive approaches to resource sharing violate copyright. In this hostile atmosphere, research which addresses the methods used by scientists to seek and retrieve journal articles should contribute useful data for academic librarians to aid in decision making.

Access and retrieval of journal articles by scientists have been investigated over the years by a number of researchers, frequently within broader studies of information-seeking behavior. Valuable bibliographies appear in the volumes by Nancy Pruett and in *Information Technology and the Conduct of Research: The User's View*.[6,7] Constance C. Gould and Karla Pearce prepared an excellent summary covering all scientific disciplines for the Research Libraries Group, Inc.[8]

This article focuses on two basic questions: (1) How do scientists first become aware that a particular journal article exists? and (2) How do scientists actually obtain a copy of the desired article? Hypotheses of the investigation are as follows:

- The library's chief contribution is that of journal repository plus a mechanism for document delivery for those items not owned.
- Academic librarians play a negligible role in directing the scientists' attention to specific publications of interest.
- Scientists' dependence on bibliographic databases is minimal with the exception of chemists, who locate more through databases than do workers in other disciplines.
- The majority of references come to the attention of scientists through personal contacts and references in the published journal literature.
- Physical retrieval of the majority of references is through the library's journal collection.

METHODOLOGY

A pioneering study of scientific communication in the United States by D. W. King and others demonstrated the effectiveness of asking scientists directly how they first became aware of a particular article they cited and how they actually obtained a copy.[9] King's methodology, slightly modified, was used in the present study to contact 319 U.S. scientists in biology, physics, chemistry, mathematics, and geology. In addition to specifying their mode of access and retrieval, participants had an opportunity to comment on problems encountered and to suggest improvements in this process.

Nineteen journals were selected on the basis of recommendations from scientists in the respective disciplines and through independent evaluations.[10] Table 1 lists the journal titles used in the study; articles taken from each were chosen by random sampling. Examination of the information-seeking behavior of authors of articles in these highly prestigious research journals provides input from some of America's most talented scientists. The sample of 319 articles in these journals, published during the last six months of 1991, formed the corpus of literature for the research. The five disciplines were equally represented, approximately, in terms of the number of articles from each.

Most of the authors contacted were in academic institutions: chemistry (100 percent); biology (91 percent); mathematics (91 percent); physics (85 percent); and geology (70 percent). Private corpora-

TABLE 1
JOURNALS USED IN THE STUDY

Biology	
	American Journal of Botany
	Anatomical Record
	Journal of Bacteriology
	Proceedings of the National Academy of Science
Chemistry	
	Journal of the American Chemical Society
	Journal of Inorganic Chemistry
	Journal of Organic Chemistry
Geology	
	American Journal of Science
	Bulletin of the Geological Society of America
	Geology
Mathematics	
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	Society for Industrial and Applied Mathematics (SIAM) Review
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Physics	
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tions, government agencies, and research institutes accounted for the remainder, especially in geology, with relatively high employment in federal and state surveys. These data are not surprising, given the research nature of the journals and the pressure to publish in academia. Thus, the results of the study strongly represent the academic community.

A single cited journal reference from each article was selected with the goal of achieving the following overall sample for each discipline:

- Citations published 1980–1991 — 60 percent
- Citations published 1979 or earlier — 35 percent
- Citations in a foreign language — 5 percent

Obviously, the proportion of each of these categories varies by discipline; these percentages represent an approximate (somewhat arbitrary) average for purposes of consistency among the various subject areas. Thus, variation in access and retrieval in terms of the age of the citation or its language might be observable.

For each article in the sample, the first author received a personal letter. (See Appendix A.) The letter supplied complete bibliographic information on the scientist's 1991 article along with the selected journal citation in exactly the format it had been cited. The request to complete a "brief form" solicited information on: (1) how the citation had first come to the scientist's attention and (2) how the citation had actually been obtained. Thus, the form reflected the two research questions posed initially and offered these possible modes of access and retrieval:

- *Access*: Personal Contact; Current Awareness Service; Seminar or Conference; Database (Online or CD-ROM); Traditional Abstracting/Indexing (A&I) Service; Reference in the Literature; Suggestion from a Librarian; Browsing in Journals; Don't Remember; Other.
- *Retrieval*: Library Subscription; Interlibrary Loan; Electronic Copy; Reprint, Preprint, Photocopy from Colleague; Personal Journal; Librarian Gave It to Me; Don't Remember; Other.

In addition, participants were invited to comment on problems encountered in journal access and retrieval and to suggest improvements. A stamped, self-addressed envelope for return mailing completed the packet.

RESULTS

The return rates for the various disciplines were as follows:

- Chemistry — 67 percent
- Geoscience — 80 percent
- Mathematics — 76 percent
- Biology — 79 percent
- Physics — 75 percent

Some 116 of the scientists returning the form offered comments, some at great length, describing problems

TABLE 2
HOW SCIENTISTS FIRST BECOME AWARE OF JOURNAL ARTICLES

	Physics %	Chemistry %	Biology %	Mathematics %	Geology %
Personal contact	39	29	38	46	37
Reference in the literature	41	36	31	24	28
Browsing in journals	2	7	11	5	26
Seminar or conference	7	0	5	16	5
Database (Online or CD-ROM)	2	9	6	0	0
Traditional A & I service	2	7	0	5	0
Current awareness service	0	5	6	0	2
Suggestion from a librarian	2	2	0	0	0
Don't remember	2	2	2	3	2
Other	0	2	2	0	0

and suggesting solutions related to journals. The opportunity for these open-ended remarks allowed participants freedom to discuss whatever was on their minds in a creative, unstructured format. A number of common threads run through all the disciplines.

Access

The results shown in table 2 address the first research question: "How do scientists first become aware that a particular journal article exists?" No appreciable differences could be detected in either access or retrieval for citations in foreign languages, older citations, or newer citations; thus these categories were not separately tabulated. The table shows that, for alerting scientists to journal articles of interest, nothing is more critical than: (1) personal contacts and keeping up with the work of specific researchers; and (2) references in the published literature.

Personal Contacts. Scientists in all disciplines except chemistry and physics depended most heavily on some form of personal contact to learn about journal articles that they subsequently cited. King also found very strong dependence on personal contacts; combining his categories of "preprint or reprint" and "colleague reference," which would be comparable to the present research, resulted in physical sciences (32 percent), life sciences (26 percent), mathematics (43 percent), and environmental sciences (54 percent).[11]

Personal contacts took the form of keeping up with the work of specific researchers over the years; maintaining contact with faculty and graduate students from university days; receiving preprints or reprints from colleagues around the world; and suggestions from their own graduate students, reviewers, or collaborators. Several described complex personal networks of coauthors, students, friends, advisers, and professors.

Numerous comments reinforced the data: "The most valuable is knowing personally the major contributors to the field and staying current with their work." "The 'good guys' publish in the same set of good journals, so usually there's no problem." "Knowing a person and following his or her work is the most important means I have for most of my citations."

References in the Published Literature. Discovering references through the literature was the most significant mode of access in physics and chemistry and the second most significant for all other disciplines. A few scientists described in some detail their use of citation tracking, either forward or backward, to access the reference in question. *Science Citation Index* consistently received high marks.

Databases and Other A&I Services. The use of databases (online or CD-ROM) or traditional A&I services for ac-

cess was relatively unimportant except in chemistry. The total of 16 percent (9 percent and 7 percent) of the references in chemistry which were accessed through online databases or other A&I services suggests that these approaches are especially critical to that discipline and reflect chemists' strong orientation toward the literature. Other contributing factors are the high quality of *Chemical Abstracts* and the generous academic discount for online services offered by the publisher. King obtained similar results, finding relatively high use of A&I services among physical scientists, who located 20 percent of their references in this manner, and low use among life scientists (4 percent) and mathematicians (0 percent).[12] Julie Bichteler and Dederick Ward as well as A. Gralewska-Vickery found extremely low use of A&I services and databases among geoscientists.[13,14]

In a nutshell, scientists thought that electronic databases should be more complete, less expensive, and more user-friendly.

In contrast to the low actual use of databases and A&I services to locate references of interest, 40 percent of the participants who chose to comment discussed online access. They described problems, suggested improvements, and expressed hope for the future of electronic resources, which they perceive as the only effective means of dealing with the mass of scientific literature. Thus, we see the interesting situation of significant dissatisfaction with current databases but high expectations for the future.

Chemists and biologists commented most frequently on databases; geoscientists least. Many described specific problems they had personally encountered, such as delays in updating databases, incomplete files wherein one can't retrieve articles known to exist, lack of retrospective coverage, high costs, inaccurate and/or incomplete addresses of authors of articles, poor coverage in interdisciplinary areas, limitations on representation of graphics and illustrations, slow response times, inefficiency of menu-driven software, complex protocols which require constant practice to stay competent, personal dislike of online searching, the librarian's being unavailable to conduct a search because of other responsibilities, and time-of-day constraints on searching in order to save money.

One-quarter of those who mentioned some aspect of electronic applications complained of difficulties with keyword searching. Use of keywords is "limiting," "a real pain," unproductive as "only a small portion of relevant articles" are retrieved, difficult because articles are "not indexed under the keywords I would have expected," "not standardized," etc. Two scientists could not retrieve their own articles by keyword! Participants in the study tended to blame the system, and one suggested that all indexing should be done by scientists.

Interestingly, no one mentioned thesauri or controlled vocabulary, suggesting that these end users need more instruction and assistance in order to be effective searchers. Dr. Damon Ridley of the University of Sydney, an internationally known expert on searching CAS ONLINE, has pointed out that chemists do not use the "Index Guide" and that most scientists simply don't understand the use of a thesaurus.[15] As STN representative in Australia, he is concerned both with inefficiency of online searching by scientists and by poor title construction by authors who do not adequately consider future keyword retrieval.

In a nutshell, scientists thought that electronic databases should be more complete, less expensive, and more user-friendly. Standardized protocols and more sophisticated software such as expert systems geared to individual interests and needs were seen as possible aids in access. Several scientists mentioned the desirability of free Internet access to A&I and current awareness services.

Browsing in Journals. Most scientists argue that browsing in library and personal journal issues is of critical impor-

tance in keeping up with the literature. Geologists and biologists found the largest number of articles in this manner. Those in other disciplines appeared to find browsing less productive. King found considerably higher dependence in all disciplines on identification of useful references through "subscription copies" than did the present study.[16]

Database access does not necessarily compensate for the lack of physical access, as a chemist eloquently describes:

> One of the most disturbing aspects of the continuing evolution to computer databases as the principal means for finding information is an information tunneling effect. The database method of search forces you to focus, to have a fairly well-defined idea of what you are searching for. Sometimes that is fine.
>
> But often, my best ideas come when I am browsing through journals, randomly reading bits of information here and there as different diagrams and structures catch my eye. This frequently causes the superimposition of ideas and concepts and bingo! . . .out pops a new idea. This does not happen when you hunt for information via databases. However, invariably when I go directly to the printed journal or to the printed version of *Chemical Abstracts*, I will very frequently uncover interesting and useful articles during the process of flipping pages to find the articles I was looking for in the first place.

A geologist agrees: "Nothing beats wandering around and 'discovering' literature in your own library, provided it is well stocked. I can't give a percentage, but it's amazing how often I just open up a book or a journal to a relevant reference."

Current Awareness Services. Current awareness services played a minor role in access, whether online/CD-ROM or in traditional paper format. A notable exception was *Current Contents on Diskette with Abstracts*, which received lavish praise from users. In some respects, this service with its abstracts and weekly updating can effectively substitute for canceled subscriptions. Cost is high, however. With an individual subscription in 1993 ranging from $750 (Agriculture, Biology & Environmental Sciences; Physical, Chemical & Earth Sciences; or Clinical Medicine) to $965 (Life Sciences J-1200 Series) and the networked version considerably more, many scientists find it out-of-reach, financially.

Professional Meetings. Learning about references through contacts at conferences, seminars, etc., was especially important for mathematicians, third only to personal contacts and literature references. Several described the value of meeting other researchers at conferences, hearing their papers, and keeping up with their work henceforth. A botanist recalls, "I had met him earlier at a seminar. Since I knew him, when I started to do research in this area, I looked up his work." (This statement illustrates the difficulty of distinguishing between the access modes of "personal contact" and "seminar or conference," a dilemma which was left up to the scientist to resolve.)

Role of the Librarian. Clearly, academic librarians have a critical role in providing their clientele with appropriate journal collections and access to those collections. However, in the present study only one librarian was given credit for actually alerting a faculty member to a specific article of interest. A few scientists compared their present academic services with former special library environments, suggesting that in the latter more individualized attention was available from the staff. One geologist who had previously worked for an oil company recalled how the librarian supplied new journal information (including the tables of contents) every morning through the public folder which users could scan, note ones of interest, and request copies, all electronically.

Other. Participants commented on several unique access methods which they placed in the category of "other." For example, a molecular geneticist described this interesting system:

> At Washington State University, computer programs for the analysis of

TABLE 3
HOW SCIENTISTS RETRIEVE JOURNAL ARTICLES

	Physics %	Chemistry %	Biology %	Mathematics %	Geology %
Library subscription	73	71	58	52	49
Reprint, preprint, photocopy from colleague	16	12	19	39	35
Personal journal	3	10	13	0	9
Interlibrary loan	3	4	6	0	4
Electronic copy	0	0	0	0	0
Librarian gave it to me	0	0	0	0	0
Don't remember	5	2	0	3	4
Other	0	2	3	6	0

DNA and protein sequences are maintained in a central VADMS (Visualization, Analysis and Design in the Molecular Sciences) laboratory. The login process for this system requests that any published work assisted by the programs be appropriately referenced and gives the applicable references for the different programs. This is how we learned about the Deveraux et al. reference.

Retrieval

This section addresses the second research question posed initially: "How do scientists actually obtain a copy of the desired article?" Two principal methods of retrieval dominate all the disciplines: library subscription; and reprint, preprint, or photocopy from colleagues. Although library subscriptions are critical for everyone, physicists and chemists are the chief users, while mathematicians and geologists lead in obtaining copies from colleagues. Chemists, biologists, and geologists depend on their personal journals more than do physicists and mathematicians. The percentages in table 3 indicate relative use.

The continuing degradation of physical retrieval in their local libraries was a major concern for 44 percent of those who offered additional comments. Journal subscription cuts, both in place and proposed, were paramount; several participants pointed out major titles important to their own work which were no longer available locally. Even if a subscription remained on campus, the canceled title in their own branch library was sorely missed: "Imagine a chemistry library that no longer subscribes to *Biochemistry*!" A zoologist laments that "Our library has a grossly incomplete selection of journals in my area of research, hardly any foreign journals."

Other comments addressed long delays in the bindery, the lack of space which necessitates storage of older backfiles in remote locations, loss of journals by theft or negligence, poor management resulting in slow reshelving, missing and mutilated journals, and general inaccessibility. An amusing comment from a biologist indicated a certain lack of appreciation for library classification systems: "I like journals kept in a separate section in alphabetical order. I try to avoid libraries in which journals are randomly dispersed among the books."

As journal subscriptions continue to be cut, inadequate document delivery, that is, slow and expensive interlibrary loan, increasingly becomes a critical concern. (No one commented on commercial document delivery services.) A statistician states simply that "[there is] an unacceptably long delay between the time when the need first arises and when I receive a photocopy." Several scientists described delays of two to three months, pointing out that most requests are no longer of interest after such a long time. Some resort to bypassing the library en-

tirely (it's faster and cheaper) yet resent the encroachment upon their time. A botanist points out:

> [My biggest problem] is being able to obtain the article easily and rapidly—there have been many times when I want to refer to an article but am not certain if it will be of use—in such cases interlibrary loan can be too slow and require too much time and effort to be worthwhile. Libraries should improve the speed and ease of use of interlibrary loan. In some cases it has been easier for me to call a colleague at another institution where I know the desired journal is available and request a photocopy than to go to our own interlibrary loan desk (which should specialize in such a process!).

Rapid retrieval of articles, preprints, and conference proceedings through FTP on the Internet was the ideal solution for these (mostly) academic scientists; files could then be viewed on the scientist's screen and printed on the local laser printer if desired.

What, we might ask, is new here? The answer is that these particular academic scientists believe—in an age of new services such as CD-ROM networks and expanded access through the local PAC—that library service is worsening. Fewer titles are available locally with insufficient retrieval structures put in place to make up for their absence. With increased use of remote storage and fewer current titles, opportunities for browsing have decreased. A geologist comments, "Older journals tend to be put in storage—but as a geologist, I need frequent access to these volumes. The need to request individual volumes eliminates the possibility of serious browsing."

The solution to these dilemmas, expressed by a large majority of scientists in all the disciplines, was the hope for fast, efficient retrieval of the full text of journal articles stored online. CD-ROM, mentioned only occasionally, was an alternative option. Rapid retrieval of articles, preprints, and conference proceedings through FTP on the Internet was the ideal solution for these (mostly) academic scientists; files could then be viewed on the scientist's screen and printed on the local laser printer if desired. Physicists were especially enthusiastic, due partly to their very favorable experiences with such services as Ginsparg's (Los Alamos) preprint bulletin boards on the Internet, as described by Taubes.[17]

Scientific Journal Publishing—Effects on Retrieval. A number of respondents expressed dissatisfaction with the "system" of scientific journal publishing, laying blame on commercial publishers, the publish-or-perish syndrome which keeps inferior journals in business, and the repetitive publication of nearly identical articles by the same author. A geologist comments:

> Scientists pad their résumés by publishing the same work in both major and obscure journals, then cite themselves incessantly to give the appearance of legitimacy. The rest of the community is then forced to dig up these obscure references which are not carried by most libraries, wasting both time and resources. Employers should emphasize quality over quantity.

Another geologist suggests that "Scientists are going to need to stop publishing in the high-priced commercial journals to force them to decrease prices." More than one respondent suggested canceling all journals published by certain European commercial publishers.

CONCLUSIONS

This study investigated the methods which scientists use for the access and retrieval of journal articles, providing contrasts among disciplines and uncovering some problems, preferences, and hopes for the future. Findings have implications for present and future roles played by the academic library in serving its scientific clientele.

The academic library would benefit from increased marketing and public relations, as scientists are frequently unaware of policies and services. Several

comments from participants in this study illustrate this point. For example, a chemist stated, "An electronic version of the *Science Citation Index* would be the most valuable reference tool for journal article access that I can think of. Maybe someday it will be available to libraries and individuals." Unaware of publishers' mailing policies, a biologist assumed that his library delayed more than a week in shelving new journals since he received his personal copies much earlier than they appeared in the library. A university chemist explained that what he most needed was a way to find out when upcoming foreign conferences in his field were to be held. Such anecdotes suggest the need for a more proactive, aggressive stance toward marketing services and correcting users' misconceptions.

As cancellation continues, where does that leave scientists who depend heavily on direct access to the published literature through local collections?

Library literature is replete with predictions that university libraries will continue to undergo transformation from warehouses for stored, printed materials into gateways for electronic access to information. Thus, as access is separated from ownership, questions of physical location will become secondary. In the meantime, slower growth in library acquisition budgets means less access to scholarly resources within the library.

The ARL report points out that "pressure on acquisitions budgets will cause various research libraries to look more and more alike over time, as each ceases to purchase as many of the more esoteric publications and chooses rather to be sure that essential volumes are acquired."[18] Some of the scientists in this study would argue that their institutions have begun canceling journals which are critical to their fields and are certainly far from "esoteric." As cancellation continues, where does that leave scientists who depend heavily on direct access to the published literature through local collections? After all, depending on the discipline, 49 to 73 percent of the physical retrieval of articles in this study was through library subscriptions.

While some academic librarians propose that scientists will use the library as an electronic gateway, others like S. M. Malinconico warn that the future may not be so straightforward. Various agencies, on and off campus, have a stake in information resources and are perfectly capable of providing sophisticated electronic access.[19] As more full-text electronic resources become available, scientists will access them directly. Academic physicists already lead the way in bypassing libraries through their rapidly expanding use of preprint bulletin boards in subdisciplines such as high-energy particle theory, astrophysics, general relativity, and nuclear theory. As increasing numbers of scientific journal publishers like Elsevier and the American Society for Microbiology offer electronic access and retrieval, problems of who will pay, peer review, integrity of the electronic record, and archiving must be addressed.

What, then, is the emerging role of the academic library as far as its scientific clientele is concerned? In addressing this question, information professionals should give serious consideration to differences in access and retrieval among disciplines, some of which are suggested in this study. Related questions also come to mind. How should electronic availability (perhaps quite expensive) affect collection development? Should academic libraries opt for increased efforts in cooperative acquisitions so that they don't look "more and more alike"? What are the long-term implications for users who find electronic access prohibitively expensive?

Regardless of present and future electronic innovations, findings of this study suggest that scientists feel increasingly cut off and remote from their journal literature that is becoming more and more inaccessible. Most academic scientists have very simple expectations for

the library. They do not demand electronic services which are (or will be) available from their own desktops. They do expect and need fast, efficient, and inexpensive document delivery for material not owned and not available electronically. If the library is cutting thousands of dollars of journal subscriptions, scientists point out, surely more emphasis should be placed on document delivery. Thus, scientists who participated in this study would urge their librarian colleagues, when defining new roles and services for the "library without walls," to place the highest priority on fast, efficient retrieval of journal articles, still the primary vehicle for scientific communication.

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APPENDIX A

March 23, 1992

Dr. John Doe
Geological Research Division
Scripps Institution of Oceanography
La Jolla, California 92093-0215

Dear Dr. Doe:

In your recent article, "Ocean nutrient distribution and oxygenation: Limits on the formation of warm saline bottom water over the past 91 m.y.," published last year in *Geology*, you cited the following reference:

Wright, J.D., Miller, K.G., and Fairbanks, R.G., 1991. Evolution of modern deep-water circulation: Evidence from the late Miocene southern ocean: Paleoceanography (in press)

I am investigating the ways by which scientists in various disciplines first become aware of and then actually obtain the journal articles which they cite. The journal crisis in this country seems to be continuing unabated, with significant increases in subscription rates announced for 1992 along with further massive cancellations by libraries. Studies such as this one which contribute to our knowledge of the information-seeking behavior of scientists should provide useful data for improving access to the journal literature, so critical to the scientific endeavor.

Would you please take a moment to complete the enclosed brief form and return it to me in the self-addressed envelope? If a co-author came up with this reference, please forward this request to that person.

Thanks very much for your help.

Sincerely,

Julie Hallmark
Professor
Graduate School of Library and Information Science
The University of Texas at Austin

Enc.

Using Quality Concepts to Improve Reference Services

Janet Dagenais Brown

Much has been written about how reference librarians can evaluate and improve the quality of the answers they provide to reference questions. There has been considerably less discussion, however, about how to improve the quality of the delivery of those answers. Suggestions for improving the quality of service found in the business literature are applicable to improving reference service as well. Insights gained from a review of the quality literature were used by the Wichita State University Library to improve the quality of reference service offered. Descriptions of a number of projects undertaken by the Reference Department as an outgrowth of the business literature studies are included.

Reference librarians have become increasingly concerned about the quality of the reference service they provide. We know that having positive and productive experiences in the library will encourage students to use it frequently to enhance and augment their formal course work. One way libraries can cultivate "repeat business" from students is to provide them with high-quality reference service.

Recently, realizing that it had been some time since a thorough evaluation of their service had been made, reference librarians at the Wichita State University Library decided to see what they could do to improve the quality of their reference service. It was not difficult to find information describing the characteristics of high-quality reference service. From the national level to the local level, librarians have struggled to define and measure good reference service. The Standards and Guidelines Committee of the Reference and Adult Services Division of the American Library Association, for example, has developed "Information Services for Information Consumers: Guidelines for Providers," which outlines in detail what libraries must do to provide quality service to their patrons. It states, "The library should provide users with complete, accurate answers to their information queries regardless of the complexity of those queries," and stresses that "Information service staff members must communicate easily and effectively with the full range of the library's clientele regardless of a client's age, gender, ethnicity, disability, sexual preference, or English-language proficiency."[1]

On a smaller scale, individual librarians have also tried to define the characteristics of good reference service for their particular types of libraries. James Shedlock, in an article entitled "Defining the Quality of Medical Reference Service," states that "quality reference service depends on three critical elements: the answer, the process, and the delivery." According to Shedlock, the answers supplied by "quality reference

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service must provide accurate, correct, and truthful information." The process or "way in which information is found on behalf of the user" must be efficient and timely. And the delivery or "style in which an answer is communicated to a user . . . strongly influences the perception of quality." He goes on to say, "Sometimes *how* information is delivered is more important than *what* is delivered."[2]

From the national level to the local level, librarians have struggled to define and measure good reference service.

Both the guidelines from the ALA and the philosophy of an individual librarian emphasize that high-quality Reference Service is made up of two parts. The first is a complete, accurate, and timely answer (the "what"), and the second is a delivery process that is responsive to the individuality of each patron (the "how").

THE PROBLEM

While guidelines and definitions that describe quality reference service are helpful and stimulating to information providers, they do not really offer practical direction. In the library literature, there has been much evaluation of, and debate about, the accuracy of the answers reference librarians provide patrons. However, few articles or books offer actual step-by-step methods for improving reference service delivery. It seems to be much more difficult to measure how a service is perceived by its users than to determine whether a question is answered correctly.

THE LITERATURE ON QUALITY

Fortunately, librarians are not the only professionals trying to define and provide quality service. Our colleagues in the fields of business and organizational management have published reams of information in books and journals on "Quality Service," "Service Excellence," and "Customer Satisfaction." Are there techniques that these professions have developed that librarians might apply to making our own service "excellent"?

A review of the recent business literature led to over *seventy* appropriate books and articles on quality service published for the most part between 1990 and 1992. Three names appeared over and over in the quality literature. This "quality triumvirate" includes W. Edwards Deming, Joseph M. Juran, and Philip B. Crosby. Each offers important ideas about methods for improving service that would be of interest to reference librarians.

Deming

The name W. Edwards Deming is almost synonymous with the acronym TQM (Total Quality Management), which, according to an article in *Nation's Business*, "has become the most popular abbreviation since TGIF."[3] Deming's "14 Points for Management" state that, in order for quality to occur in an organization, managers must create a constancy of purpose for the organization as a whole, initiate training and retraining for employees, provide leadership, break down barriers between departments, eliminate employee fear of reprisals, and seek constant improvement for the organization.[4] A recent article in *Library Journal* by Terry and Kitty Mackey, "Think Quality! The Deming Approach *Does* Work in Libraries," explains how Deming's fourteen points can be adapted to libraries.[5]

Juran

Joseph M. Juran, another quality expert, developed the "Quality Trilogy" as a guide to quality for managers. It includes steps for Quality Planning, Quality Control, and Quality Improvement.[6] *Quality Planning* focuses on identifying the organization's customers, and then defining their needs. *Quality Control* assists the workers by providing feedback on performance, and *Quality Improvement* refers to the process of continually striving to prevent problems in quality rather than dealing with them only after

they have occurred. Juran's massive *Quality Control Handbook* includes a useful chapter on providing quality in the "Service Industries."[7]

Crosby

Philip B. Crosby, like Deming, has developed a fourteen-point "Quality Improvement Process" for managers. He also stresses that management must make a commitment to quality improvement, and that it must be an ongoing process; training on quality must be provided for employees; and "zero defects" should be the company's performance standard. Problems should be prevented rather than corrected later.[8]

Common threads run through the philosophies of these three men, and indeed through all of the available articles and books about providing quality service. The "Quality Creed" set forth in these works could be said to include four major parts:

- The top management of the organization must make a commitment to quality improvement.
- Employees must be engaged in the improvement process through involvement and empowerment.
- The organization must work continuously at improving quality.
- The organization must be customer-driven—it should identify its customers and strive to meet their needs.

CUSTOMERS AND CUSTOMER SERVICE

While most reference librarians may not have a major impact on setting the management style of the library, there are parts of this creed on which they can take action. Reference departments can make their reference service more "customer driven" and involve all reference librarians in the process. They should focus their efforts on the "how" of service delivery.

It is useful to understand more about the service interaction and what it is that makes "buying" and evaluating a service (such as reference service) different for the customer than "buying" and evaluating a material product. According to Richard Normann in *Service Management: Strategy and Leadership in Service Businesses,*

> The person buying a product, such as a car or a pen, may concentrate his evaluation process on the product itself. It is there, it is tangible, and it can be tested and investigated from every angle. . . . The customer who wants to buy a service is in a different position. The service is not yet there to be experienced—it cannot be demonstrated without being sold.[9]

Also, a product, such as a personal computer, can be produced without the consumer ever coming in contact with the people who manufacture it. This is not true with services. Not only will consumers have to come in direct contact with the person providing the service but they also will have to be actively involved in the actual production of the service. It is a joint effort, and it is highly personal. In his book Normann points out that "It is the skill, the motivation and the tools employed by the firm's representative and the expectations and behaviour of the client which together will create the service delivery process."[10]

What the consumer experiences during this contact with the service provider has been called the "Moment of Truth," a phrase coined by Swedish airline magnate Jan Carlzon. A moment of truth is "that precise instant when the customer comes into contact with any aspect of your business and, on the basis of that contact, forms an opinion about the quality of your service and, potentially, the quality of your product."[11]

Reference librarians will encounter many of these moments of truth during each shift at the Reference Desk. How well these moments are managed will determine how satisfied our customers are with our service. It is important to remember that our service must have some kind of value for our patrons. They are not getting it for free, even though no money changes hands. Patrons spend time, money, energy and effort when using our service. At the same time, they may experience inconvenience and frustration.[12] Therefore, each moment of truth must be managed or performed

carefully because "customers judge service by the quality of their interactions with the people who provide it. The more contact employees have with customers, the more critical employee behavior is to perceptions of service quality."[13]

What happens if reference librarians don't manage moments of truth well? Patrons will miss out on more than just good answers to their questions and a good feeling about libraries. Reference librarians have goals for their interactions with customers that go beyond just making them happy. In academic libraries, especially, we want the library to become an integral part of the educational process for all students. We want to reach them and teach them how to become independent learners in the library.

EFFORTS TO EVALUATE THE "SERVICE ENCOUNTER"

Reference librarians at the Wichita State University Library wondered how we were doing with moments of truth at our Reference Desk. Could we apply some of the same principles of quality service used by businesses to our own service function? We decided that the first step to improving our service quality was to find out more about our "customers"—exactly who were our patrons, and were we meeting their library needs?

In the fall of 1990 we embarked upon several projects designed to answer these questions. Perhaps it would be useful to others to hear about the ideas we tried and experiences we had. Our approach involved four projects: (1) a Problem Log; (2) a Suggestion Box; (3) the Wisconsin-Ohio Reference Evaluation Program; and (4) a Reference Automation Quality Circle.

Problem Log

What We Did: A "Reference Area Problem Log" was developed for the Reference Desk. Problems or complaints received at the Reference Desk from students, faculty, or staff (including other library employees and ourselves) regarding the use of materials, equipment, and services in the Reference Area were documented on this form. Columns were set up to record the date, time, and nature of the complaint, as well as the solution offered the patron by the librarian.

What We Learned: The Problem Log pointed out several distinct categories of user problems and/or needs in the Reference Area:

- The wide variety of computer equipment available, associated with frequent technical problems, was a major source of frustration for both patrons and staff.
- The constant moving of CD-ROM workstations as new databases were added was frustrating to users, and indicated a need for better signage in the Reference Area.
- Patrons would have liked more one-on-one instruction from a librarian on how to use the computer systems available.
- The growing number of databases available in the library was creating a need for additional instructional handouts.

Reference librarians have goals for their interactions with customers which go beyond just making them happy.

In addition to the insights gained about problems patrons were having in the Reference Area, the Problem Log provided a number of unanticipated benefits. Since it was completely nonconfrontational, it opened up another avenue for communicating among ourselves about problems. It also provided a good way for the librarians to do some immediate "venting" about frustrating encounters with patrons.

Suggestion Box

What We Did: The library had not had a Suggestion Box in place for years, and it seemed an effective way to solicit feedback about our services. A form was designed to accommodate suggestions, comments, and requests for books.

A box for collecting suggestions and a bulletin board for posting responses

were mounted on a wall just outside the Reference Area. Within days, suggestions began appearing in the box. Suggestions were routed to the department best able to respond, and responses were then posted on the bulletin board for two weeks.

What We Learned: Over sixty suggestions were received during the first year. Comments fell into several categories:

- The majority referred to the *library building and facilities*—the usual requests for a lounge or vending machine area, more telephones, etc.
- A few concerned *library policies*—"Why is it that materials may only be renewed twice?"
- Several described problems using library *finding tools*, and gave us the opportunity to explain, or offer additional help by appointment.
- One or two offered suggestions for ways to *make things easier for patrons*—for example, "Put blocks in the stacks to indicate when there is a second copy of a periodical on microfilm."

These suggestions have been invaluable in making us more aware of patron needs and the problems they are having in the library. The Suggestion Board has provided each "suggester" with a personal reply, and the anonymous nature of the exchange allows patrons to feel safe about communicating their ideas and frustrations. The Suggestion Box has proven useful in soliciting feedback, and anyone who stops to read the responses has the opportunity to learn something about the library.

Wisconsin-Ohio Reference Evaluation Program

What We Did: An effort was made to identify a survey instrument that would allow us to evaluate not only how well we were answering reference questions, but provide more information about (1) the characteristics of our customers, (2) how well we were meeting their needs, and (3) areas where we might need to improve our service to them. We hoped to find an instrument that would give us an awareness of how librarians, as well as patrons, were perceiving each "moment of truth" at the Reference Desk.

A review of the literature turned up many studies on methods of evaluating reference service. "Unobtrusive" surveys were quickly eliminated because of their rather negative "spylike" approach to evaluation. Their use of "canned" reference questions which had definite right and wrong answers seemed to oversimplify the reference transaction. Many questions have more than one "appropriate" answer, depending on the needs, skill, and knowledge of the questioner. An unobtrusive test would not point out our skills (or lack of them) on nonfactual questions, which frequently require lengthy question negotiation. The more open-ended questions are just as common, and are usually much more difficult to answer than factual questions. An unobtrusive test would focus on the "what" (the answer) of our reference service rather than on the "how" (the delivery).

Eventually, an "obtrusive" survey instrument was located which allowed both patrons and librarians to participate in the evaluation. The *Wisconsin-Ohio Reference Evaluation Program* instrument (called the Reference Transaction Assessment Instrument or RTAI), developed by Charles Bunge and Marjorie Murfin not only provides libraries with information about question-answering success (i.e., "customer satisfaction") but also furnishes data on patron characteristics, subject areas and level of difficulty of patrons' questions, amount of time spent by the librarian in answering the questions, number of sources consulted, level of busyness at the desk at the time of the question, etc.

The *Wisconsin-Ohio Reference Evaluation Program* allows each participating library to compare its survey results with those of:

- all academic libraries in its same size category (based on total number of volumes in library)
- the top-scoring library in that size category
- all academic libraries in the sample [14]

Validity of the Survey. In an article for *RQ* in 1985, Charles Bunge reported on the development of the Reference

Transaction Assessment Instrument and its later test in fifteen academic libraries.[15] According to the article, the instrument showed an initial "high face validity" among reference librarians asked to comment on the form. Two years later, in *College & Research Libraries*, Marjorie Murfin and Gary Gugelchuk described the rigorous series of reliability measures, such as Cronbach's alpha, and validity tests to which the instrument had subsequently been subjected.[16] By the time our library administered the survey five years later, sixty-seven other academic libraries had already participated in this evaluation program, indicating its acceptance as a significant and validated instrument.

Administration of the Survey. The *Wisconsin-Ohio Reference Evaluation Program* allows libraries to choose the number of computer-scannable survey forms they wish to give out—100, 150, or 200. We chose the 200 form category, and thus administered 200 questionnaires for reference questions we received, and 200 shorter forms for directional questions. We selected a typically busy week at the end of March during the spring semester of 1992 to administer the survey. Thirteen reference librarians and one paraprofessional participated. We selected four to five hours each weekday to conduct the survey. Different hours were selected each day and evening in an effort to get an accurate picture of our patrons.

Twenty questionnaires were passed out each hour—one to each of the first ten patrons asking directional questions, and one to each of the first ten patrons asking reference questions. Each of the two reference librarians on duty was responsible for five directional question forms and five reference question forms. Our Reference Desk was extremely busy, and we thought that this number of questionnaires would be the maximum "do-able" amount in an hour. When the librarians had given out all ten of their forms, they were finished with the survey for that hour.

After answering a question, the reference librarian would ask the patrons if they would be willing to participate in a survey that would help us evaluate our reference service. Most patrons were very willing to help. Librarians separated the forms, handed back the patron's copy, and indicated a basket near the desk for completed forms. Librarians then made notes to themselves about the question on the corresponding part of the form, and completed each one later when off the desk. Since the patrons' and librarians' forms had corresponding numbers on them, interested librarians could go back, match up their forms with patrons' forms, and see how they had performed individually.

Limitations of the Survey. Although our intent was to get a broad and random selection of responses to the survey, a number of factors may have affected the results of our survey: we did not administer the survey on weekends, and may have missed some of our "nontraditional" students who tend to use the library more frequently on those days; only "walk-in", as opposed to phone, patrons were surveyed; and, some of our frequent users participated in the survey several times, thus limiting the total number of unique responders exposed to the survey. Most likely, none of these factors had a major impact on the survey results. However, the survey itself may have one limitation. Bunge and Murfin have cautioned that libraries participating in this program are self-selected. Since they are not a random sample, they may not be representative Reference Departments, although there is no evidence to suggest that they are not.[17]

What We Learned: Of the sixty-seven academic libraries that had already participated in this program, twenty-two were in our same size category—medium-sized libraries holding 500,000–999,999 volumes. The survey results allowed us to compare our library's performance with the averaged scores of these other twenty-two academic libraries, as well as with the averaged scores of all sixty-seven participating academic libraries.

Especially interesting was the data that allowed us to compare our scores

with those of the academic library which had received the highest score on patron satisfaction. Patron satisfaction was based on the patrons answering that they had found exactly what was wanted and were completely satisfied.

In addition to providing valuable insights into our reference service, the survey results confirmed what we already knew—because our desk was so busy, we were unable to give patrons as much assistance as they felt they needed.

The results of our survey provided a few surprises, along with confirming a number of our impressions about our reference service:

- Our Reference Department scored very well overall on the survey, but showed a potential for scoring even higher.
- Our patrons felt that librarians were courteous and appeared knowledgeable. Interestingly enough, the busier we were, the better the patrons perceived what we were doing.
- Our patrons were very aware of the fact that we were often extremely busy at the desk since they indicated that they frequently received too little time and help.
- Librarians indicated that our patrons seemed to need a lot of extra help—more direction and attention than other academic libraries in the program.
- Our Reference Department scored higher on being helpful to graduate students than to undergraduates.
- We spent less time answering each question than the average amount of time spent by other academic libraries.
- Our two highest user groups by a large margin were freshmen and graduate students, contrary to our impression that upper-level undergraduate students were our biggest users.

In addition to providing valuable insights into our reference service, the survey results confirmed what we already knew—because our desk was so busy, we were unable to give patrons as much assistance as they felt they needed. In fact, according to Bunge and Murfin, "the librarian's report of being busy is the single largest factor associated with failure" in eliciting patron satisfaction with service.[18] Obviously, this emerged as a critical area for improvement in our reference service.

Reference Automation Quality Circle

What We Did: A fourth approach to improving reference service was to find out what the reference librarians' needs were—What would empower us and enable us to do our job better? During the spring semester of 1992 the Reference Area of the library was experiencing severe growing pains. Technology was being added at an alarming rate. Reference librarians frequently did not have time to learn to use the new computerized resources before these products were made available to patrons.

One reference librarian suggested that we try a Quality Circle approach to addressing problems resulting from our perceived "technology overload." The idea of Quality Circles is based on the teachings of W. Edwards Deming and J. M. Juran. A Quality Circle is "a small group of employees and their supervisor from the same work area, who voluntarily meet on a regular basis to study quality control and productivity improvement techniques, to apply these techniques to identify and solve work-related problems, to present their solutions to management for approval, and to monitor the implementation of these solutions to ensure that they work."[19] Basically, "Quality Circles teach people to break a problem or process down into small components. Difficulties that may have developed can then be recognized, and a solution (or solutions) can be developed."[20] The head of reference appointed four librarians to a "Reference Automation Quality Circle," whose purpose was to anticipate and plan for the effects of new or revised automation procedures and equipment. Some of the ideas and solutions

the committee developed for dealing with our technology expansion included:

- A daily checklist for the Reference Desk indicating which databases would be "down for repairs," changes in menus, software, location, etc. Often, the Reference Desk was not alerted to changes and fine tuning made on computers in the Reference Area.
- A "Reference Librarian Survey" requesting suggestions and comments about Reference Area issues from the librarians working at the desk.
- A "working paper" stressing the need for the removal of some clerical tasks being performed at the Reference Desk to allow librarians more time to answer patrons' reference questions. (Reference librarians serviced all computers and printers in the Reference Area, rebooted systems that were not operating correctly, and served as the central telephone switchboard for the entire library.)

What We Learned: When organizing our Quality Circle, we were not aware of one of the critical elements that makes one work—a circle is composed of a small group of employees *and their supervisor*. Our supervisor was not a member of the Quality Circle and the ideas and suggestions we came up with for improvement were not necessarily priorities for the department head. Eventually, the Quality Circle was abandoned, but not before at least one significant improvement was made. The head of reference was able to assign two student assistants to manage a "Computer Assistance" desk during some daytime hours, and also late hours after the reference librarians had left the desk. These students now help patrons with paper jams and disabled computers, and also with directional questions when possible. This has worked out extremely well for both the patrons and the reference librarians.

CONCLUSION

Reference librarians of the 1990s can profit from implementation of some of the quality improvement techniques that have been used so successfully by business organizations. We were able to adapt some of these methodologies for use at the Wichita State University Library. Many elements of the projects we undertook came directly from the writings of Deming, Juran, Crosby and others in the field. These elements included: identifying the characteristics of our customers and their needs; periodically evaluating our service and identifying limitations; and promoting pride and teamwork through employee involvement in the improvement process.

We have also addressed what is perhaps the most important part of any quality improvement activity—making improvement a continuous process. After the projects described in this paper were completed, the library administration made a commitment to more than double the number of student assistant hours available at the "Computer Assistance" desk. This will allow reference librarians to concentrate on providing patrons with the additional time and attention we now know they need. To see if this change produces the desired effect, the *Wisconsin-Ohio Reference Evaluation Program* will be administered again within the year. And, in order to more fully address the needs of lower-level undergraduate students—one of our largest user groups according to our survey—a new "Undergraduate Services Librarian" position has been established.

We have also addressed what is perhaps the most important part of any quality improvement activity—making improvement a continuous process.

The Reference Department continues to seek new ways to reach and teach users. The Suggestion Box is still monitored daily. And for the past two semesters, reference librarians have offered one-hour workshops on using the many CD-ROM resources available in the library. These workshops were offered at a variety of times each semester, and, while not attended by large groups of

students, have been popular with both librarians and students. Finally, in an effort to keep our dialogue on reference service flowing, the Reference Department will soon be having its first "Rethinking Reference Retreat." This half-day meeting will allow us to discuss our reference service in depth, and to build on our improved understanding of our patrons' needs in order to develop a model for delivering to them the most appropriate high-quality reference services.

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Librarians, Self-Censorship, and Information Technologies

John Buschman

This article explores the theme of self-censorship in the library field and its relation to the new technological resources that are becoming very prominent in the profession. A brief discussion of the concept and meaning of censorship and self-censorship is followed by an examination of three broad areas: the results of investing in high-status and high-cost electronic resources; the effect of information technologies on literacy and historical records; and the relationship of electronic resources to market censorship. The author finds that, in each of these three areas, librarians may be self-censoring by not examining the negative effects of movements toward electronic library resources.

Perhaps it may seem curious for librarians to write about issues of censorship and technology. After all, our professional wisdom tells us that information technology is expanding our access to ever more information. Further, the meaning of the word *censor* is "to examine and expurgate," from the Latin meaning "to assess, estimate, judge."[1] In other words, censorship is commonly something done to others. Self-censorship is a kind of contradiction, and probably needs some clarification before its relationship to technology is discussed.

Sue Curry Jansen broadens our conception of censorship when she identifies censorship as encompassing those "socially constructed proscriptions and prescriptions which inhibit or prohibit dissemination of ideas . . . and other messages . . . by political, economic, religious, or other systems of authority."[2] Self-censorship can be thought of as not assessing, estimating, or judging some of the dimensions of our professional library decisions—our socially constructed proscriptions and prescriptions—thereby leaving assumptions unexamined and some results unchecked for the public we serve. Perhaps Celeste West summed up librarians' self-censorship most succinctly: "Some things are more equal than others in our minds. We often use lack of funds as a cop-out for exclusion."[3] It is the purpose of this article to show that this is exactly what is taking place when librarians discuss, decide, and debate information technologies in libraries and their benefits for users. The focus will be on three widely overlooked areas of consequence or possible consequence of information technology in libraries: high-status resources, print literacy and social memory, and market censorship.

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THE COST AND CONSEQUENCES OF HIGH-STATUS RESOURCES

Early in the twentieth century, scholars of the Frankfurt School began an examination of the hierarchy of social values placed on differing methods of knowing. Western culture, they argued, has elevated scientific rationality as a "preferred value" and as a source of truth and information. As David Held states, the result is that "whatever cannot be reduced to numbers is illusion or metaphysics" or mere humanistic ideology.[4] Certain kinds of knowledge (scientific, measurable, profitable) have a social prestige and more *weight as true knowledge*. The implication is, of course, that other forms of inquiry and *their resulting knowledge are devalued, regardless of their insight or truth*. Critical educational scholars have extended this analysis to the culture of schooling: there are corresponding high- and low-status areas in the curriculum (math/science versus humanities and the softer social studies).[5]

This notion is applicable to our profession: *librarians are opting for high-status electronic resources and access at the expense of lower-status (traditional) formats and resources*. Information technology, as John Durham Peters states, is the classic product of scientific rationality and the scientific/military establishment. "Information is the stuff of science, and science is (rightly) where [it] has taken strongest root."[6] As a result of their natural affiliation with scientific rationality, information technologies hold a very high status in our culture. It is the socially and economically preferred medium for access to information and soon, to the full text of documents.[7]

The author has written elsewhere that the library profession is adopting information technologies in an unreflective and uncritical way as a means of associating ourselves with the prestige of science and technology, thereby raising our traditional lowly professional social status.[8] There is no question that libraries of all kinds are spending proportionally more of their budgets on electronic resources, as a recent *Library Journal* survey pointed out.[9] As a result, our choices of collection building are deeply affected. In 1988 John Haar pointed out, "In many cases, the real choices may be whether to buy ease of bibliographic access at the expense of constricting the acquisition of new monographs and serials . . . ." He further noted that, like the print equivalents they replace, electronic reference resources become the de facto benchmarks for collection building. Since most CD-ROM products are periodical indexes, "underindexed" monographs "may be consequently underutilized." Further, "if selectors respond . . . in conventional fashion, by subscribing to more [periodicals], they will probably do so by reducing budgets for monographic collections."[10] Note that these decisions are not necessarily being driven by the quality of the resources or their value in building a collection, but rather by the need to adjust to electronic information resources. There is evidence, in academic libraries at least, that this is exactly what is happening.[11] This will further increase the "selectivity," identified by Charles Willett, which discriminates against unestablished or controversial materials.[12] It is worth noting also that all of this investment in electronic library resources is taking place in an era of stagnant budgets.

There are a few illustrative juxtapositions of the kinds of choices and decisions being made, and clues as to the social and economic values embedded in the choices being made for library users:

- Academic libraries face collection decimation caused by inflation and the lack of budgets to collect and preserve serial and monograph collections while at the same time heavily subsidizing new fee-based research services (which are usually not profitable) for area companies.[13]
- The New York Public Library only recently has found the funds to restore staff and extend hours cut from branch libraries around the city (of primary benefit to local neighborhoods and schoolchildren). In the

meantime, NYPL was able to proceed with a Science, Industry, and Business Library with an integrated technology system at a cost of $18.5 million to the public.[14]

- Finally, former President Bush, in reacting to the recommendations of the WHCLIS, supported "a national network for information sharing . . . copyright statutes and business information centers" but left out endorsing the Omnibus Children and Youth Literacy Initiative—a priority recommendation from the conference.[15]

It is not at all difficult to conclude that information policy leaders and librarians are engaging in a form of self-censorship by not examining the long-term consequences of our purchases of information technologies. There is an unquestioning adoption of the prestige and intellectual bias of the technologies, and this is apparent when one examines the big and small picture of funding and the intellectual and programmatic emphasis in librarianship. The tradeoffs of what we are not purchasing for our users as a result of these investments is self-censored out of our professional discussions.

A LESSENED RELATIONSHIP TO PRINT LITERACY AND SOCIAL MEMORY

Paul Gherman, in an article in the *Chronicle of Higher Education*, spelled out in budgetary terms just how the move toward access and electronic text will be accomplished at his university library: "New electronic services and products are high on our list of priorities, on demand information comes next, sustaining important periodicals next, and monographs get the remainder of our budget. The bottom line is that we will be spending more of our budgets for access to information and less on ownership." He goes on to discuss how purchasing access will save the space and physical handling costs printed materials require. In turn he expects that money to be plowed into more access. Eventually, monographs will be printed on demand. To be fair to Gherman, he does not oversell this vision nor underestimate the nature of the change. However, he does tend to present this as the de facto future of libraries.[16]

This article does not address the question of how the materials to be produced and disseminated electronically are to be chosen for inclusion in the new digital context. That is and will continue to be a process of political and economic selection and there is a danger in creating a new—electronic—canon based on elements of the old canon and highly profitable information. Further, unquestionably the government, business, and the technical establishment are pushing in this direction. A large number of prestigious universities, corporations, professional associations, government agencies, and the leaders affiliated with all of them are sponsoring products, projects, and research in this area.[17] However, it is questionable whether as a profession we have given any real reflective thought or inquiry to the public consequences to print literacy, the historical record, and social memory.

Bluntly put, electronic text is not just printed text in a different format. There are deeper meanings to electronic text. C. A. Bowers said it most concisely when he noted that "patterns of communication . . . mediate the individual's sensory relationship with the environment and re-encode the vocabularies of the culture while at the same time influencing what gets saved and what gets lost in the transmission process."[18] In other words, there are agendas and forms of power inherent in the structures of communication we are adopting. What follows are some examples of what we are self-censoring (and potentially censoring for our users) by not examining the new mediation and re-encoding of our vocabularies.

John Durham Peters notes that text in an electronic form takes on a different character: it becomes information, "an extraordinarily crumbly, granular, and short-lived stuff. The resistances of [printed] texts to interpretation, and their power to engender many and conflicting readings, evaporates when they become information."[19] If this seems farfetched, consider that a supporter of the

Dartmouth Dante Project—600 years of Dante commentary with the full text of Dante's work—described that new environment as a "textual chainsaw" to hack pathways through information that formerly was classic text.[20] This may or may not be intellectually fruitful or good, but certainly the timeless is becoming timely and may well be obsolete in the next moment. Our professional discussions of such developments and their effects on library users have been absurdly one-sided.

Other kinds of electronic texts — texts with pictures, music, and movement — certainly do not fulfill the same learning functions as books. For example, the joint Center for the Advancement of Applied Ethics/Center for Design of Educational Computing project at Carnegie Mellon University seeks to "add the dimension of emotion to ethics education" by bringing in high-quality videodisk pictures to text on an ethical dilemma. They show a burn victim who suffered burns over 65 percent of his body who pleaded with doctors to allow him to die. His therapy, and aspects of his subsequent life—dialing a phone with his tongue—are all shown.[21] A subtle change has taken place here. Just as television news and issues are now presented and public opinion is formulated, how the burn victim looks and sounds will inevitably be a factor in the ethical decisions reached by the students as a result of their "reading" of the case.

These kinds of resources become a medium to capture attention. Their purpose, as Jay Rosen writes, is to "strike a responsive chord . . . . The way you communicate is not to send messages (or compose texts). Instead, you fashion a 'package of stimuli' that will resonate with what is already and continuously communicated."[22] Electronic text and multimedia texts result in profound differences with what we know and value about print culture. It is not enough for the profession for librarians to merely say that the changes are coming anyway, so they have no choice but to join in to keep their jobs. We have a social and intellectual responsibility to the public to examine our mission—and not redefine it willy-nilly for convenience—and look deeply at information tech- nologies. Our current trajectory of rhetoric, visions, and plans for the future holds enormous possibilities for self-censoring print literacy from our services to people.

Eugene Provenzo has called the phenomenon of the shift to electronic text and media "post typographic culture," and he has reassessed his original celebration of it. He notes that the integrity of the historical record may become entirely alterable without noticeable traces of change. This is a very real possibility in digital culture, and Provenzo among others sounds a caution: "Anyone who has used a word-processing system with a substitution or replacement function knows how easy it is to transform information in a digital context. One word [or a date] can be automatically substituted for another . . . without any record of what the original source said."[23]

Provenzo also notes that the ability to encode photographs digitally represents another danger to the historical record and social memory. This "represents a major problem in terms of the integrity of historical documents, and the extent to which we can trust the information from such sources in the future." Provenzo concludes that our "ability to alter the past has always been potentially possible [but until now] it has tended . . . to be enormously time-consuming and relatively easy to detect."[24] Again, John Durham Peters states that "information lacks history: it belongs only to the present moment and risks being made obsolete in the next."[25]

The historical record and social memory are traditional areas that the public has relied upon librarianship to protect. Perhaps they are becoming much more ethereal and manipulable because libraries may no longer be storehouses and archives of records, but rather sites of access in this new vision. There are sufficient technologies available now to control the distribution of text and information electronically. But that system of electronic distribution means that information and text truly can be centrally controlled in terms of access and cost.

Digital culture, the culture librarians are adopting, nullifies many of the practical brakes on censorship and monitoring of access. Are we giving away values of individual and private patron inquiry?

The technical framework necessary to purchase access on a national scale becomes a reality with library support, but self-censorship prevents us from examining carefully what we may be endangering in the process: privacy and intellectual freedom. Are we still serving the values and strengths of print literacy with this technological trajectory, or unwittingly laying the groundwork of what many scholars have called the *electronic panopticon*? That would be a society of widespread electronic surveillance and data collection, effectively ending personal and intellectual privacy as we know it.[26] We are endorsing a new medium which will change the nature of learning, reading, scholarship, and even rationality, as Neil Postman has suggested.[27] This is not just a new format. In time it will tend to supplant, suppress, and change important social and intellectual values.

INFORMATION TECHNOLOGY AND MARKET CENSORSHIP

Market censorship has been with us for a long time. Melville complained that "Dollars damn me . . . What I feel most moved to write, that is banned, it will not pay."[28] Sue Curry Jansen has explored our new environment and she called it *information capitalism*—what sells is what gets produced in the first place. She concurs with Dallas Smythe's argument that "the act of modern censorship is essentially a decision as to what is to be mass produced" and it must now be added, how it is to be distributed. It is proper to regard this as censorship Jansen and Smythe argue, because corporations are legally regarded as persons, and fewer and fewer of those "persons" control the worldwide system of communications and information.[29] Librarianship has grappled with this issue, but self-censorship may be precluding us from seeing the same forces of market censorship at work with information technologies.

Market censorship of library resources is most visible in the growing centralized corporate control of information resources. Many other scholars have detailed this centralizing of ownership and control into a very few corporate hands: Ben Bagdikian, Herbert Schiller, and Patricia Glass Schuman are just a few. Bagdikian summarized what should be librarianship's concern: until now no one "has commanded as much power [as a few media multinationals do now] to shape the information on which so many people depend to make decisions about everything from whom to vote for to what to eat."[30]

Librarians are already vigorously debating the issues of this centralization and their meaning for users: privatization; fees for services/information; access to United States Government information; and unequal access for rich and poor. The author has written elsewhere that, if we look carefully, we would see that information technologies have been the driving force behind making much of that centralization possible. Further, there is a bias in the content of the new library electronic resources: those which have had the potential of economic return (i.e., of service to the related agendas of business and science) developed first, and other subjects (the unprofitable humanities and social sciences) developed only later after the market was saturated. There is still a significant imbalance—weighted toward the scientific and profitable—in the content of electronic resources available to our users.[31]

Finally, there is ample evidence that the electronic resources libraries will (and do) purchase are subject to the same centralization of ownership and control, and thus are subject to the same forces of market censorship exercised in other information media. For instance, the publishing giant Elsevier—a prime mover in the journal inflation many libraries face—is introducing document delivery services as a way to fight journal inflation.[32] The decision to allow the Regional Bell Operating Companies into the information business is another

illustrative example. While there are no clear-cut good guys in this battle, the presiding judge noted in his ruling that the RBOCs "have no experience in the content or the substance of information." The warnings of the American Association of Publishers about "competing against the enormous monopoly power of the RBOCs" ring true, and there was a frank and open fear that the telephone companies would use their control of regional telephone service to control competing businesses—a practice with long precedent in the telephone business.[33]

James Govan sees in these new resources the real possibility of turning libraries into "retailing shops" and librarians into mere "shopkeepers" remarketing information services—leaving behind public values of service, intellectual freedom, and equal access.[34] Herbert Schiller perhaps summarized the issue best when he stated, "To imagine that these [new privatized, centralized, and commercialized electronic] services are the sum total of a librarian's contribution is to acquiesce to the emergence of a society in which social aims have been discarded. It would be a society in which commercial goals are achieved efficiently with electronic technology, but in the process, free access to information as a social commitment goes by the wayside."[35]

There are very good reasons to believe that the digital environment librarians are embracing has the potential to be far more subject to market censorship, control, and monitoring than our current environment. Librarians, by not examining the context and parameters of information technology resources available for our users, and the influence of market censorship, are engaging again in a form of self-censorship. Market centralization and the technologies of distribution play a role in what gets produced for the public in the first place, and how equitable will be the public's access. We do not do justice to our professional and intellectual responsibilities to that public when we do not carefully examine who produces and controls what we buy. To paraphrase Charles Willett, "the manufacture of consent" is not a legitimate goal of librarians in building collections or the production, distribution, access, and selection of library electronic resources.[36]

CONCLUSION

When asked if he opposed technology, Mahatma Gandhi once said, "What I object to is the 'craze' for machinery, not machinery as such."[37] Electronic information resources can provide powerful and enabling possibilities to librarianship. However, we must become more intellectually responsible and mature when we deal with the issues raised by information technologies. To overlook the problems while remaining dazzled only by their possibilities is to engage in the self censorship of not recognizing what we are—and may be—trading away in our choices of formats. Libraries are not value-neutral institutions embodying the best of our current efforts at "information policy." The historical and sociological work by Wayne Wiegand and Michael Harris clearly demonstrates this.[38] Libraries are, like school curricula, contested terrain in wider battles for economic, social, and intellectual dominance. It is our professional and intellectual responsibility to our users not to self-censor the other issues—the underside of our library information technologies.

Lastly, librarians need to be challenged to shift our one-sided technological discourse. Too often, we are swayed by the great social credibility and prestige of information technology. To question our profession's technological trajectory or even the purchase of the latest CD-ROM product is to stand in the way of enormous, inevitable, and invincible "progress" and be labelled a Luddite—as it is popularly understood—in our profession. Social critics remind us that technologies and their uses are products of human and social decisions, and the results of their use (good and bad) are both planned and accidental. Michael Walzer states the issue best:

> Social criticism is critical interpretation.... It is less the practical offspring of scientific knowledge than the edu-

cated cousin of common complaint. Social critics are individuals . . . speaking in public to other members who join in the speaking and whose speech constitutes a collective reflection upon the conditions of collective life . . . . We become critics . . . by elaborating on existing moralities and telling stories about a society more just than, though never entirely different from, our own.[39]

Librarianship needs more social critics of our new information technologies.

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Scholarship and the Academic Librarian

William K. Black and Joan M. Leysen

In order for librarians to succeed within the academic model, an environment must be established that recognizes the interplay of activities in the three areas of performance (teaching, research, and service). This environment requires clear criteria for performance, opportunities for and assistance with scholarly activities, a schedule that is conducive to the academic model, clear delineation of faculty and support staff responsibilities, adequate training, and broad criteria for assessing contributions. This article addresses the importance of a holistic view to the academic model of librarianship and suggests a system for providing support and judging performance.

THE CONDUCIVE ENVIRONMENT

The Academic Model

The unique role of librarians in the educational process is often recognized through a special academic or faculty status that promotes the concept that librarians, like their counterparts in the teaching faculty, are significant contributors to the academic enterprise. Frequently this is recognized by a three-tiered structure requiring performance in teaching (professional practice), scholarship, and service.[1]

The philosophy surrounding this model promotes the concept of librarians as academicians by recognizing that they participate in the educational mission of the institution by providing information and services which enhance the advancement of learning and research. They do this through direct work with users or indirectly through acquiring, organizing, interpreting, and/or administering library resources or programs. In this manner they fulfill a unique teaching function by bringing the quest for knowledge together with available information resources. They are also active in collegiate citizenship; namely, they are involved in library and university governance structures through committee service as well as community outreach.

Further, librarians disseminate the results of their work through publications, lectures, exhibits, and participation in appropriate technical, professional, and scholarly societies reflecting their research reputations. Contributions to the practice of librarianship, scholarly work, and institutional and professional service each form a vital and dynamic part of the composite picture of the librarian within the academic context. This holistic view is particularly important in recognizing the contribution that librarians make to the educational process. It has been difficult for many academic libraries to provide the environment necessary to foster, assess, and promote this view, particularly with regard to scholarly contributions.

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The Scholarship Component

Benefits. The academic model for librarians assumes that scholarly activity is beneficial to the practice of librarianship. The research component can strengthen reference, cataloging, and collections activities. It often sharpens skills and broadens perspectives for the daily services provided and produces a beneficial effect on other aspects of the job assignment. Dwight F. Burlingame and Joan Repp's survey of librarians revealed that 44.2 percent of those who published thought publication was a positive aspect of library service.[2] Research can provide a sense of self-satisfaction that comes from communicating one's ideas to a broader audience, building an area of expertise, and receiving recognition within and outside promotion, tenure, or salary allocation.[3] It can promote strong relationships with teaching faculty, enhance beneficial comprehension of the research process, and facilitate concrete understanding of the access and service needs of the library clientele. Research fosters a broad perspective of the field, strengthens librarians' knowledge of current issues, shapes the dialogue surrounding those issues, and leads to innovative approaches and a responsiveness to change.[4]

Obstacles. The particular designation of faculty status for librarians has engendered debate over the years as to its appropriateness and achievability. Much of the debate has centered on the scholarly component of this faculty model which often encourages or requires publication. Librarians often have difficulty meeting scholarship expectations because of the structure of their work environment and the way in which the institution and librarians themselves perceive scholarship. W. Bede Mitchell and L. Stanislava Swieszkowski's survey of member institutions of the Center for Research Libraries found that in libraries where publication is required for tenure, failure to perform and disseminate research was the most frequent reason for being denied tenure.[5] The scholarship component may be viewed as an additional burden to the job expectations rather than as an integral component of a total picture. This view of librarianship, the atomistic view, separates professional practice from scholarship and service, and splinters what is designed to be a cohesive and complementary process.

Others see a conflict between service to users and research expectations. If librarians are required to perform research, the quality of library service could diminish.[6] Still others are uncertain as to the criteria for performance and promotion/tenure review. Often librarians are overwhelmed by the process. Guidelines seem complex and confusing, or they may not be easily accessible. Some resources for funding or other support may be oral traditions that are not broadly known. At times, individual faculty may not utilize adequate initiative to discover available support systems.

Librarians often have difficulty meeting scholarship expectations because of the structure of their work environment and the way in which the institution and librarians themselves perceive scholarship.

The work schedule is often cited as a primary hinderance to the production of quality scholarship. Parallels are frequently drawn with teaching faculty who experience a schedule that is often seen as more conducive to participation in the three-tiered faculty structure. "Most academic librarians work under twelve-month contracts, do not receive salaries equal to those of teaching faculty with the same rank, do not enjoy a flexible work day and week, and are not provided with the compensatory release time necessary for them to contribute in a scholarly manner to their field."[7]

Creating A Supportive Structure

If we are to expect librarians to contribute within the faculty structure in the areas of professional practice, scholarship, and service, then we must be prepared to provide the structure necessary

for success. This should include ensuring clear, consistent, and well communicated criteria for performance, providing a system of regular performance review, building in a supporting structure and mentoring system to aid librarians in meeting established criteria, and creating an environment in which librarians see their role as holistic (and, in fact, synergistic) rather than composed of individual and separate parts.

Criteria. National standards developed by ACRL provide a framework for development of institutional performance expectations.[8] Criteria for promotion and tenure will vary from one institution to another depending upon individual type and mission, and the particular status accorded librarians.[9] Such criteria generally outline expectations and a review process for performance. Often, however, these expectations, particularly in regard to research and publication, may not be explicitly defined.[10] As Janet Krompart and Clara DiFelice report, "both librarians and directors are often uncertain about librarian scholarship responsibilities and benefits at their institutions. Confusion among librarians about the achievements necessary for favorable personnel reviews and/or promotion appeared persistently in early and late survey findings."[11]

It is incumbent upon us to ensure that performance criteria are consistent, current, and broadly disseminated. All librarians must understand what is required. Clear job expectations should be agreed to each year as part of an annual work plan. Such a plan should be part of the performance appraisal process and needs to recognize the requirement of the faculty to contribute successfully in each area of their job assignment (professional practice, scholarship, and service). The work plan, the promotion and tenure criteria, and the annual performance evaluation instrument must be consistent in the factors measured and in the way they are assessed. Sessions should be scheduled both within the context of the annual performance discussion and during the promotion and tenure process to provide a dependable mechanism for regular feedback. Consistency between the annual review and the promotion and tenure review processes will result in unified expectations.

Since scholarship is an integral part of the faculty responsibility, the schedule of assignments must include an opportunity to perform scholarly work.

Making Scholarship Meaningful. In order to be successful in promoting scholarship in the assignment and assessment of job responsibilities for librarians, scholarship should be meaningful and relevant to the individual position assignment. Since scholarship is an integral part of the faculty responsibility, the schedule of assignments must include an opportunity to perform scholarly work. Ideas for scholarly projects should come, at least to some extent, from the daily work of the librarian who is involved in planning and developing services and programs and in making decisions related to them. This will promote easier identification of topics and relevance to the work situation. Identifying and creating new reference resources, developing a better interface for accessing a database, and preparing an index to a volume or collection, are all examples of scholarly activities that could be initiated by a question at the reference desk. While cataloging a large volume of materials in one subject area, the cataloger might discover a gap in an area of the classification schedules and propose a new scheme or modification to the schedule. Publication of this proposal would assist other libraries in cataloging similar collections. Work with new technology, such as text digitization in interlibrary loan or artificial intelligence in acquisitions, can be applied to routine tasks to measure their impact on patterns of information requests. Work in the area of collection development, policy setting, and human and programmatic resource management can lend it-

self to the investigation and production of scholarly works. With increasing responsibility for divergent aspects of library service on the part of many librarians, links between multiple facets of job responsibilities should be provided.

Library faculty may write instructions, procedures, and evaluations as part of their daily responsibilities. Others may have opportunities to participate in preparing written in-house reports that include analysis and interpretation of user services or that study the impact of a new technology or enhancement to current workflow. Betsy Baker suggests librarians conduct "action research" which utilizes observation and conversation to study existing conditions (such as library services) and make recommendations to improve or resolve those conditions. This research is "conceived and carried out in practice—by practitioners."[12]

It is easy to view the cataloging or reference work that librarians do as the primary job to the exclusion of the other facets of their responsibilities. In the academic model, this is shortchanging all components. There should be a real continuity between professional practice, research, and service, and we need to appreciate the benefits inherent in this relationship.

Mentoring. Some librarians do not have the requisite skills to conduct library research. Others may be uncertain about the publishing process and where to look for appropriate publishing outlets. Still others need help in focusing ideas into significant works. Certain librarians may have good composition skills yet may lack knowledge of research methodology and statistical analysis. While some library schools provide instruction in research skills in order to enhance this capability, the socialization of librarians to the academic model lacks the full mentoring structure evident in the graduate programs of many other disciplines. The educational preparation of academic librarians could include a better acculturation to the academic model and its expectations for research.[13] Skills development and opportunities for mentoring and collaboration should be made available to librarians once they are hired. The American Library Association has recognized the need for research skills among librarians and has devoted preconferences to training and development in this area. Some libraries have small-group meetings where research ideas are contributed and discussed. Many librarians can take advantage of advice and counsel from colleagues who are prolific authors or who serve on editorial boards. These individuals should be acknowledged for serving as mentors in the organization.

Other institutions have established resource centers consisting of manuscript guidelines for a number of journals, time-lines and instructions for grant applications, and copies of published articles by the faculty. The Auraria Library created a Research Center in 1987 to collect information supportive of the research process, addressing such matters as manuscript preparation, publication guidelines, and examples of topics and methodologies.[14] Presentations at library meetings about the promotion and tenure criteria as well as discussion of current research projects will boost morale, produce incentive, and provide ideas. An internal committee might help match research opportunities in a specific area with individuals whose interest or experience is in the same area. Opportunities abound for cooperative research projects that are particularly useful when additional expertise or support is needed.

Schedule. Librarians often cite the schedule as a barrier to successful completion of expectations in the three-tiered faculty structure. Librarians working within the academic model will often ask, "How am I going to accomplish all of my reference work, carry out my committee assignments as expected, participate in the profession, and perform research when I'm required to work every day, twelve months a year?" While it is not the schedule alone that causes difficulty in meeting expectations, it is certainly a primary area of concern.

Time for performing research and service should be structured into the work day just as time for cataloging and service to the institution and the profession is provided. Otherwise, participating in the scholarly process has too many starts and stops, producing a lack of momentum resulting in an obstacle to constructive research.[15] A number of programs are in place at different institutions to provide librarians with opportunities for performing in all areas of their assignment. These have included the designation of assigned and unassigned time, setting aside a specific amount of time for research or consulting, offering leaves of up to two weeks for work on special projects away from the press of daily responsibilities, long-term leaves such as sabbaticals, and occasionally nine-month contracts that parallel those of the teaching faculty. Frank and Allie Goudy report on a schedule at Western Illinois University based on CUEs (credit unit equivalencies). "Scheduled CUEs mandate that a person be specifically accountable for their presence, while unscheduled CUEs allow library faculty members to conduct their activities at their own discretion, like teaching faculty . . . without being required to report their location to their department chairs. In no case would a library faculty member be scheduled less than eighteen hours nor more than twenty-four hours per week."[16] In this organization, all research-related activities including attendance at professional meetings are performed during unscheduled CUE time.

Release time is frequently cited as a solution to complaints of lack of time for research activities. Responses from sixty-eight ARL directors reported that thirty-five libraries had some form of release time.[17] Shelley Arlen and Nedria Santizo reported a similar finding. "Few of those librarians required to publish report allocation of a specific amount of release time during the work week (7%), but almost one-third answered that limited release time (two to eight hours per week) is available upon request."[18] The same study also revealed that where librarians had the autonomy to schedule their work time, they also were more likely to have written release time policies. A written policy on release time provides the assurance by administration "that research is a valued and significant part of a faculty member's professional life. . . . A written policy also informs support staff of the importance of research activities."[19]

Viewing librarianship as an eight-to-five job that requires constant job presence severely limits the librarian's ability to meet promotion and tenure expectations.

While release time does allow librarians to perform scholarly activities without interruption of the daily duties, some may be reluctant to take (or support) such leave if it means a reduction in the level of service to library users, an increase in the backlog of day-to-day activities, additional burden for colleagues, or if it is tied to a specific publishing expectation within an unachievable time frame.

Even the term *release time* may not be the best. How can you be released from something that is integral to your assignment? Just as in the teaching faculty model, research must be seen as a part of what library faculty do. "Since research, along with other professional activities, is considered part of the job, one does not need to be released from one's duties to pursue research."[20] In the academic model, research must blend into a cohesive whole with each of the parts providing important benefits for the others. We do not perform reference work, serve on library committees, participate in ALA groups, and conduct research and writing, separately. Each activity reflects upon and benefits the others, and the schedule should recognize that fact.

If we look at the librarian's job within the academic model, it should not be based upon time or job presence but rather on what core responsibilities are

expected in the areas of professional practice, scholarship, and service. The schedule should recognize the importance of, and allow for contributions in, all areas of the assignment. How can we expect librarians to contribute fully if we mandate a schedule that impairs their ability to succeed? Viewing librarianship as an eight-to-five job that requires constant job presence severely limits the librarian's ability to meet promotion and tenure expectations. Recent dialogue on electronic listservs, as well as discussion in ALA meetings, has frequently been devoted to such topics as release time, telecommuting, and other alternatives to the standard work schedule. We need to take a much broader view, constructing expectations and time commitments based upon professional practice *and* scholarship *and* service.

Distinguishing Faculty Responsibilities. In order to provide an environment that promotes successful performance, activities need to be defined appropriately as to whether they are most effectively carried out by librarians or by other staff. Alan Veaner states that, "one key to the improvement of librarians' academic status may be further off-loading of their production work onto support staff. For librarians to reach genuine parity with faculty, it is necessary to get librarians completely out of the 'manufacturing' business."[21] In a project at the University of Florida, catalogers worked as a team with paraprofessionals to prepare original cataloging records. Paraprofessionals performed descriptive cataloging and the professionals completed the classification and subject analysis. While the overall time to complete a record may not be improved, the time the professional cataloger has to spend on cataloging is utilized effectively.[22] While librarians and support personnel both serve extremely valuable roles, those roles are different. Responsibilities should be clarified to determine what is appropriate at each level. This will help in allocating duties correctly at every level within the organization. By properly designating work routines and assignments, librarians will be able to establish the appropriate context for their work.

Training. Effective training programs for support personnel will ensure that properly designated work is effectively carried out. This will involve providing a clear explanation of the role of the librarian in the organization, and promoting understanding between different categories of employees regarding the important and unique roles carried out in the library by each group. The responsibilities of librarians within the academic model go beyond their desk work as reference librarians, catalogers, acquisitions staff, or bibliographers. This needs to be understood and supported within the library environment in order to maintain a cooperative and effective system.

Support. Adequate financial and service support is also necessary. Financial support is needed for literature searches, guidance in preparing grants, and funding to attend conferences where librarians can network with others to stimulate ideas for research. Support services and expertise at the institutional level also facilitate research activity. Librarians need to know where they can find clerical, computer, and statistical assistance. This need not take large amounts of money. Often it simply requires organization and communication.

Assistance and support should be clear, concise, and easy to obtain. The procedures for requesting help should be simple and straightforward, providing the highest benefit for the least investment of effort. Librarians involved in the scholarship process should spend their time performing research and writing, not trying to figure out the process. An effective support system for research and publication is essential to the scholarly success of the faculty.

ASSESSING SCHOLARSHIP COMPETENCE

Evaluating Contributions

Standards. Within the faculty environment, there will exist many forms of scholarship and a number of evaluative systems for assessing those contribu-

tions. Each academic unit at the institution will produce different kinds of research that are weighed against unit-level criteria that account for particular differences in the discipline and yet still meet an overall qualitative standard for scholarship. While the contributions will vary in content and form and the assessment will take into account the unique nature of the individual discipline, works will all be of an overall quality, matching institutional minimum criteria and contributing to the body of scholarly knowledge in the particular field. The Association of College and Research Libraries' standards call for review procedures that conform to those utilized for other faculty at the same institution.[23] Quantitative criteria are less persuasive than the quality of the works reviewed. Ronald Rayman and Frank Goudy's study found that of the ten libraries requiring publication, none had quantitative standards.[24] Still, quantity is at least a factor in some promotion and tenure systems. An Association of Research Libraries study found that some libraries use general quantitative terms such as "at least two or three substantial articles," "one book," or "four reviews."[25]

For librarianship, where individuals have additional advanced degrees in increasing numbers, it is appropriate to view the field in broad terms, recognizing the unique nature of the discipline as well as the particular backgrounds of the faculty. The system for assessing scholarship must allow for contributions that reflect this broad, interdisciplinary nature of librarianship. Standards, while being appropriate to the field, must meet the general criteria for quality that exist at the institutional level. This is feasible if clear criteria are written that reflect the unique character of the profession and measure scholarship with a system that reflects high standards for contributions to the field. Such a system must be comparable, not necessarily identical, to those of other campus units.[26]

Activities in the area of scholarship have proven difficult for academic library promotion and tenure review committees to assess. Review committees traditionally struggle with such questions as: What gets counted? How do published articles in journals compare with contributed papers, editorships, and poster sessions? How do we assess quality in the production of scholarship? What about the quality of the journal? How are contributions weighed? What about coauthored works? How much is enough?

Since the field of librarianship is a broadly interdisciplinary one, it is appropriate to consider a wide range of contributions relevant to the faculty member's appointment.

Categories of Research. Contributions to the field of scholarly knowledge may include the publication of research, creation of new works, presentation of knowledge in new forms, and/or innovative application of knowledge, processes, or methodology within the field. These may present themselves in various forms such as books, book chapters, journal articles, annotated bibliographies, translations, book reviews, literature guides, published papers, or presentations. Participation in the scholarly process can take the form of author, editor, presenter, or exhibitor. In addition, recognition of scholarly achievement in the form of appointments, invitations, or awards is pertinent to the candidate's scholarly reputation. Since the field of librarianship is a broadly interdisciplinary one, it is appropriate to consider a wide range of contributions relevant to the faculty member's appointment. This appointment will include all aspects of position expectations, not just the individual's responsibilities as reference librarian, cataloger, systems librarian, bibliographer, and so forth.

For the purposes of promotion and tenure review, scholarship performed by librarians can be divided into five general areas: *original research*, including books, chapters in books, articles in major journals, papers presented at

conferences, and authorship of grants reflecting original research; *secondary research*, including authored works (as editor), annotated bibliographies, anthologies, collected works, and grants reflecting secondary research; *work evaluating the scholarly contributions of others*, including editorial board responsibilities, serial editorships, book reviews, and serving as a juror of creative works; *creative activities*, including exhibits, software development, and instructional design; and *complementary research*, including presentations, exhibits, position papers, poster sessions, in-house reports, and newsletter columns. This is not an exhaustive list, since there are certainly other means of contributing in scholarship, but it will serve to indicate the types of activities that are generally undertaken. As technology continues to impact the way librarians work, new opportunities will develop that offer additional avenues for contributing to the body of scholarly knowledge.

Again, opportunities for contributing scholarship should extend beyond the faculty member's particular position to the broader arena of the faculty assignment. Work in the area of scholarship should be a reflection of the individual's experience, education, and/or professional expertise that is relevant to the faculty assignment. While colleagues in the rest of the faculty work in areas that are, for the most part, more narrow, the field of librarianship provides a broad arena in which to operate, including a variety of formats encompassing many disciplines. The point here is to provide a broad spectrum of possibilities for contribution and dissemination while at the same time expecting relevance to the field in which the faculty member works.

Evaluative Factors. While defining the opportunities broadly, we must, at the same time, have appropriate standards for such work. In assessing scholarly contributions, review bodies will want to consider such factors as the reputation of the journal in which the work appears, the importance/relevance of the topic to the profession, the extent of originality/creativity in the writing and researching of the work, the degree to which the piece breaks new ground, and whether or not the work adds to the body of scholarly knowledge. The review process, then, is a critical one which must have clear and well-disseminated criteria. The successful review system involves an evaluation of all pertinent documentation in accordance with the written criteria for promotion and tenure, including material provided by the candidate, the letters of reference from evaluators, and a comparative review of the individual's scholarly work with appropriate benchmarks in the field. Extramural review by individuals qualified to comment upon the candidate's accomplishments is often a part of this review process. The intent is to obtain the broadest possible assessment so that a thorough evaluation can take place. Model criteria are suggested in appendix A.

The Work. The full picture of the candidate's expertise in the area of scholarship should be drawn from the range of contributions presented. Each activity that reflects research has a place in the scholarship assessment. Activities should be judged individually on their own merits and then brought together to form a cohesive picture of the candidate's professional competence. This will involve a review of many different activities. While completed research and scholarship are normally accepted for publication in quality journals and judged on their ability to incorporate research, reflect a knowledge of the broader field, and contribute to the body of scholarly knowledge, other works will often be present and will need to be assessed.

The definition of significance for scholarly contributions varies at each institution and during different time periods. As Rodney Hersberger states, "In the earlier days of faculty status at many schools, the preparation of in-house bibliographies or internal reports was often considered a 'publishing' activity."[27] Today, according to Betsy Park and Robert Riggs, in-house publications receive less acceptance.[28] There is a common hierarchy among scholarly works that weighs

books, chapters, or articles more highly than presented papers, articles with local focus, or in-house reports; articles in refereed publications usually carry more weight in promotion and tenure considerations than works in nonrefereed or in-house publications.[29] The particular hierarchy accorded to works, the degree of research and scholarship inherent in them, the actual type of contribution (e.g., chapter, refereed article, conference paper), the scope required, and the centrality to the job assignment or the field itself will vary from one library to another depending upon the goals, environment, and mission of the institution.[30]

The Author. As the review takes place in the area of scholarship, it is appropriate to consider the qualifications of the candidate with regard to his or her scholarly contributions. This may include an assessment of the author's qualifications to speak to the issues, the expertise apparent in the work, how well the author displays a knowledge of the larger field, and the ability of the author to assess trends, provide a proper framework, and draw conclusions.

It is important also to consider the nature of individual involvement in coauthored works, the level of accomplishment on works in progress, effort reflecting scholarship and research that results in unpublished work such as major in-house reports, presentations, papers, and awards that recognize scholarship reputation. In the case of coauthored works, the candidate should describe the nature of his or her contribution. It is our feeling that although coauthored works are treated in varying ways at different institutions, they should be viewed in a similar manner as single-authored works. We should promote and encourage collaboration between those colleagues who share complementary professional interests. As in the sciences, collegial support and formal and informal mechanisms for collaboration need to be developed and encouraged.[31]

Means of Dissemination. Scholarly works created by librarians can be disseminated through a variety of printed forms such as journals (refereed and nonrefereed), monographic publications, conference proceedings, and publications of library associations. In addition, opportunities now exist for publication in electronic formats. In the interdisciplinary field of librarianship, it is logical to define broadly the nature of scholarly contributions and their means of dissemination. Contributions will be judged in part on the quality of the forum in which they are disseminated.

An article may not always need to appear in the most prestigious journal but perhaps should be published where it will reach a more specifically defined or a wider audience.

The primary vehicle for distributing scholarly work remains the journal article. The journal provides "the opportunity for dissemination of a larger number and broader scope of issues and questions; intensive study of very specific questions or aspects of large problems; and the timely publication of intended communication (though this last item may be a disputed point on both sides of the editorial fence)."[32] The journal article is also the forum most acceptable to libraries. Ninety-two (73.6 percent) of the faculty status institutions surveyed by Park and Riggs indicated publications in refereed journals were acceptable in their promotion and tenure process.[33]

Several core lists of journals have emerged from studies of the literature of librarianship. John M. Budd and Charles A. Seavey selected thirty-six journals which "are national in scope, contain some portion of their content that is judged relevant to the academic enterprise, and are likely to be looked upon favorably in promotion and tenure reviews."[34] Many of the same journals have been named in other studies and by library educators and academic library directors as being significant in promotion and tenure decisions.[35] "Whether these rankings reflect an actual hierarchy of journal importance or whether they merely group journals into clusters

of high and low prestige, members of the academic community do use them to identify top library and information science (LIS) journals."[36]

While these journals provide standards for the profession and continue to be excellent sources for disseminating research, librarians should also consider institutional standards which may give greater weight to certain types of journals. Other publication opportunities that should be explored include newer journals (e.g., *Journal of Interlibrary Loan & Information Supply*), sources appropriate to related fields, particularly with regard to collaborative efforts, and sources befitting cross-disciplinary work. The intended audience for one's ideas can influence the journal selected. An article may not always need to appear in the most prestigious journal but perhaps should be published where it will reach a more specifically defined or a wider audience. A new computerized approach to teaching bibliographic instruction may be more suitable in an instructional design or computer-related publication than in the traditional library journal. Beginning researchers may want to distribute their ideas to a smaller audience such as a state or regional publication that may be a nonrefereed journal. While the nature of the publication forum will be considered in a review of scholarly effort, the quality of the work itself is of greatest importance. Its dissemination should be appropriate to its nature, purpose, and audience.

CONCLUSION

While there are adjustments that are necessary in bridging librarians into the faculty model, the concept promotes a holistic view of librarians that is beneficial to their role as educators and information specialists. The model recognizes the primary role for librarians in learning and research, fosters responsibility for thinking about and contributing to the academic process, and offers an opportunity for career growth, relationships with the teaching faculty, and symbiosis among the teaching, research, and service functions of academic librarianship. It is incumbent upon us to provide an environment conducive to the successful implementation of this model—one that provides clear and appropriate criteria, an opportunity for active participation, a positive environment for success, and a fair system of review. If we expect competent performance of our librarians within the faculty model, then we must provide the knowledge, opportunities, and feedback that will foster that success.

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APPENDIX A

Librarians, as members of the faculty, strengthen their competence in the field by performing research and scholarship relevant to their faculty appointment. They disseminate the results of their work through means appropriate to their specialty, such as publications, lectures, and exhibits; and by participation in appropriate technical, professional, and scholarly societies that reflect their research or artistic reputations. In weighing research and scholarship contributions, a number of factors must be considered.

The Work

- How much research and scholarship is evident in the preparation of the work?
- Is the work well presented? Is it properly documented, well focused, and organized in a logical manner? Is it timely?
- What is the degree of originality, creativity, and innovation in the work?
- Does the work place the topic in a broader professional context? Is that context well represented?
- Does the work stimulate further thought, study, or research?

- Are there reviews of the work and what is the content of those reviews?
- What is the impact of this work on the field? What is its level of contribution to the body of scholarly knowledge?
- Are the findings significant? Are they applicable in any broad way?
- What is the significance of the work compared to other works by the author and to works by other authors in the same area?
- Is it a contribution which adds value to an existing work or a core program?
- Is the work relevant to the faculty member's role?
- Does the work benefit or contribute to the goals of the library or the mission of the institution?
- Is the proper methodology used? Is it applied appropriately? Does the author apply new methods or use old ones in a new way?
- Is there critical acclaim or citation by other scholars?

The Author

- What are the qualifications of the author to speak to this particular topic?
- Are the author's qualifications apparent in the article's scholarship?
- How well does the author develop the ideas?
- In co-authored works, what is the level of participation for each author?
- Does the author communicate clearly?

The Presentation Forum

- What is the reputation of the forum in which the work is presented?
- Is the forum local, regional, statewide, national, or international?
- Does the acceptance process include critical review of the work through a referee process?

Selected Reference Books of 1993

Eileen McIlvaine

This article follows the pattern set by the semiannual series initiated by the late Constance M. Winchell more than thirty years ago and continued by Eugene P. Sheehy. Because the purpose of the list is to present a selection of recent scholarly and general works of interest to reference workers in university libraries, it does not pretend to be either well balanced or comprehensive. A brief roundup of new editions of standard works is provided at the end of the article. Code numbers (such as AD540 and CJ251) have been used to refer to titles in the *Guide to Reference Books*, 10th ed. (Chicago: ALA, 1986) and the *Supplement . . . Covering Materials from 1985–1990* (Chicago: ALA, 1992).

ENGLISH LANGUAGE

Berg, Donna Lee. *A Guide to the Oxford English Dictionary*. Oxford and New York: Oxford Univ. Pr., 1993. 206p. $19.95 (ISBN 0-19-869179-3). LC 91-41383.

The author, who is affiliated with the Centre for the New Oxford English Dictionary and Text Research at the University of Waterloo (the body responsible for computerizing the second edition of the *OED*), has written this handbook to guide users, both scholarly and casual, through the printed *OED* (*Guide* AD27-AD28, *Suppl.* AD6). The first half of the book describes the various parts of a typical dictionary entry as the reader would encounter them: headword, pronunciation, part of speech, etymology, definition, quotations, etc., with many examples from the dictionary (presumably from the second edition, but this is not specified).

Part II, "A Companion to the *OED*," is essentially an encyclopedia with one-to-two paragraph entries defining the terms and identifying the people and institutions associated with them. It is unfortunate, given the author's affiliation with the University of Waterloo, that the computerized versions of the *OED* are ignored; even the term *lemma*, which caused so much confusion for users of the CD-ROM version of the first edition, is not defined. And nowhere is there any discussion of the differences between the first and second editions. Frequent users of the *OED* should read the extensive comparison of the two editions which appeared in the *Review of English Studies*, n.s.41:76-88 (Feb. 1990).

This guide should be useful in answering questions about OED entries and libraries will want to have it; however it is not all-you-ever-wanted-to-know-about-the *OED*.—M.C.

BIOGRAPHY

Ackerl, Isabella, and Friedrich Weissensteiner. *Österreichisches Personen Lexikon*. Wien: Ueberreuter, 1992. 552p. ÖS497 (ISBN 3-8000-3464-6). LC 93-116283.

Oesterreichisches Personen Lexikon provides brief (one or two paragraphs) biographical entries for Austrians, living and dead, who have played a role in the cultural, political, or intellectual milieu from 1918 to the present (no Hitler, though). The entries, some with photographs, include brief biographical infor-

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mation and in many cases references to other sources. Although much of this information is available in other sources, this is a very useful single-volume compilation, especially rich in cultural figures. —M.C.

Victorian Biography: A Checklist of Contemporary Biographies of British Men & Women Dying between 1851 and 1901. Compiled by Peter Bell. Edinburgh: Peter Bell (Bookseller), 1993. 193p. (ISBN 1-871538114).

This checklist of contemporary biographies of British men and women who died between 1851 and 1901 was compiled in order to facilitate the work of scholars interested in researching individuals living in the Victorian era. It goes beyond the "greats," to include the "far from great" (*Pref.*) and cites biographical material, however minor, which might prove to be of use to scholars.

Working in a field already rich in biographical sources, Peter Bell, the compiler, has tapped existing sources, such as Frederic Boase's *Modern English Biography Containing Many Thousand Concise Memoirs of Persons Who Have Died between the Years 1851–1900* (*Guide* AJ222), for his material, while being careful not to duplicate them.

The result is a compilation that briefly identifies over 2,000 English, Scottish, Welsh, and Irish men and 400 women who died between 1851 and 1901 and cites references to one or more biographical works published within a short period of the subject's death. Most of the works cited are either biographies, memoirs, reminiscences, or recollections, many written by family members and printed for private circulation. Where possible, the citations include verification information in library catalogs. Excluded from this compilation are autobiographies and diaries, as these are already well covered in such works as William Matthews' *British Autobiographies: An Annotated Bibliography of British Autobiographies Published or Written before 1951* (*Guide* AJ239), and his *British Diaries: An Annotated Bibliography of British Diaries Written between 1442 and 1942* (*Guide* BD672), and in John Burnett's *The Autobiography of the Working Class: An Annotated Critical Bibliography* (*Guide* CH648, *Suppl.* CH270). Nor does it include funeral sermons and memoirs prefixing literary works.

Clearly this compilation has its niche and within that niche it fulfills its stated purpose well.—O.d.C.

PHILOSOPHY

Fetzer, James H., and Robert F. Almeder. *Glossary of Epistemology/Philosophy of Science.* New York: Paragon House, 1993. 149p. $17.95 (ISBN 1-55778-558-9). LC 92-22762.

There are many things to commend this little glossary: it is selective, it explains concepts rather than defining words, and it uses plain English rather than scholarly jargon.

The glossary limits itself to about 300 terms and twenty or so individuals—key concepts and persons in the study of the nature of knowledge. It explains each term in a context of related terms: "Knowing that vs. knowing how" and "Historical possibility/necessity/impossibility" are typical entries. Rather than attempting to trace the origins of these concepts, the compilers have contented themselves in simply presenting them as they are currently understood by scholars working on philosophical problems.

As these concepts are not simple, this glossary, besides enlightening the curious layman, can serve as an invaluable reference tool for students and teachers of courses in epistemology and the philosophy of science.—O.d.C.

MYTHOLOGY

Reid, Jane Davidson. *The Oxford Guide to Classical Mythology in the Arts, 1300–1990s.* New York: Oxford Univ. Pr., 1993. 2 vols. (1310p.) $195 (ISBN 0-19-504998-5). LC 92-335374.

Inspired by Andor Pigler's *Barockthemen: eine Auswahl von Verzeichnissen zur Ikonographie des 17. und 18. Jahrhunderts* (*Guide* BE195), Jane Davidson Reid has taken on an even more ambitious project: to compile a dictionary of Greek and Roman mythology listing in chronological

order (from 1300 to the 1990s) mythological characters and stories as they appear in the arts, including painting, sculpture, classical music, dance, and literature. Film is only included if it is a revision of an already cited work by the same artist, as in Jean Cocteau's *Orphée.* (Marcel Camus' celebrated Brazilian film *Black Orpheus,* for example, is not included.) Reid has tried to be as exhaustive as possible, realizing from the start the quixotic nature of such a project. She immediately warns the reader that she did not incorporate Pigler into her work because it would be redundant and points out that incorporating the standard print catalogs, like Bartsch, *Le Peintre graveur* and its Supplements (*Guide* BE363) was not possible given her publication deadline. This work recalls Herbert Hunger's *Lexikon der griechischen und römischen Mythologie, mit Hinweisen auf das Fortwirken antiker Stoffe und Motive in der bildenden Kunst, Literatur und Musik des Abendlandes bis zur Gegenwart* (*Guide* CF29), but it is more exhaustive, more current, and has a 191-page index of all artists cited.

Reid explains in her Introduction that she chose to use Greek names of classical gods and goddesses with cross-references from Roman to Greek, and she points out the differences between similar Greek and Roman deities within each entry. A brief description of the myth begins every entry and is followed by the major classical sources for the subject. Selective citations for further reading are often included. Reid frequently divides an entry into subentries: for example, the entry for Aphrodite has the subentries "General List," "Birth of Aphrodite," "Cythera," "Isle of Aphrodite," "Aphrodite and Anchises," "Girdle of Aphrodite," "Worship of Venus," "Venus Frigida," "Venus and Satyrs," "Statue of Venus," and "Tannhäuser and the Venusberg." Obviously, some subentries have no classical source but are widely depicted postclassical themes. "See also" references appear prior to the list of artworks. Each citation of an individual artwork provides the birth and death dates of the artist, the title of the work, its genre or medium, the date of the work, and where appropriate, performance data, publisher, location of work, versions, revisions, other works related to the original, and source references. It is unfortunate that sound recordings are not cited.

Jane Davidson Reid has compiled an immensely valuable resource for all scholars interested in postclassical depictions of classical subjects. —P.G.

LITERATURE

Dictionary of British Literary Characters. Edited by John R. Greenfield. New York: Facts on File, 1993. Vol. 1. 655p. $50 (ISBN 0-8160-2178-3). LC 90-3998. (In progress; to be in 2 vols., $95.)

The first volume, subtitled *18th and 19th Century Novels,* is an alphabetical list of characters in novels by authors whose important work appeared before 1890 (so that Hardy and Kipling appear in Volume 1); Volume 2 (forthcoming) will be subtitled *20th Century Novels.*

The characters in Volume 1, all 11,663 of them from 486 novels, include a brief description of their role in the novel. There is an index of characters arranged by author, then title. The novels analyzed include all those by major writers, as well as representative examples of more unfamiliar authors; the compilers have consciously tried to include works by women writers. The novels have been exhaustively mined for characters, almost to the point of uselessness in some cases. *Chrysal: or, The Adventures of a Guinea* by Charles Johnstone, for example, accounts for some 175 entries, with such characters as Author, Bishop, Lord ———, Rake, etc. Looking through the characters included for *Emma,* a novel I have read many times, I see names I don't recognize; there seems to be much unnecessary padding.

In fact, it is hard to know who might need this book. The main characters of the major novels are listed in other character indexes, and brief plot summaries are available in various guides, as well as the inevitable *Masterplots* (*Guide* BD74, BD75, *Suppl.* BD97). Unless, of course, someone wants to know about

the character "Puppy" from *Alice in Wonderland*, in which case this book will come in handy.—M.C.

Hopster, Norbert and Petra Josting. *Literaturlenkung im Dritten Reich: eine Bibliographie.* Hildesheim and New York: G. Olms, 1993. Vol. 1, 500p. DM 138 (ISBN 3-487-09686-2). (In progress; to be in 2 vols.) LC 93-222833.

Volume 1 of this outstanding and imaginative bibliography of the literary climate of the Third Reich is divided into two parts. The first is a bibliography of material written during 1933–45; the second, smaller half, lists scholarly studies, including dissertations, written after 1945.

Sources appear to have been thoroughly examined (despite the modesty of the Introduction), and the researcher can find references to subjects as varied as book production, lending libraries, theater productions, textbooks, popular literature, as well as to more formal literary criticism written in Germany between 1933 and 1945. Especially impressive is the detailed list, including locations and record group numbers, of archival holdings related to publishing in the Third Reich, including official records on censorship, propaganda, etc.

The bibliography has a detailed, though somewhat confused, classified arrangement. If a researcher, for instance, were interested in drama in the Third Reich, he would find material in the section (1) "Literaturkritik—Rezeption der deutschen Gegenwartsliteratur—Dramatische Formen" (this includes a citation to an annual listing of productions); (2) the section "Ideologisierung der Literature—Programmatik/Theorie—Dramatische Formen," and (3) the section "Literaturgeschichte, allgemein—Dramatische Formen," in addition to references to post-1945 studies located only through the subject index (which does not refer to the 1933–45 entries—these I found looking through the detailed Table of Contents). But the effort is well worthwhile, and researchers interested in the culture of Nazi Germany would do well to begin with this indispensable bibliography.

Volume 2 will be an annotated list of bibliographies of bibliographies and of book catalogs and lists. —M.C.

Jackson, J. R. de J. *Romantic Poetry by Women: A Bibliography, 1770–1835.* Oxford: Clarendon Pr., 1993. 484p. $72 (ISBN 0-19-811239-4). LC 92-35190.

Readers sometimes come to the reference desk with the assignment to locate a women writer who has not been collected in a modern anthology and argue for her inclusion in future anthologies. These readers, as well as those engaged in upper-level and graduate research on the English Romantic period, will be well served by this bibliography listing the printed volumes of verse of nearly 900 women writers. The bibliography is arranged alphabetically by writer, and each entry provides a brief biography of the author before listing chronologically all of her books having at least seven pages and published between 1770 and 1835. Entries include publisher, date, dimensions of the title page, pagination, author as given on the title page, and the reference on which the entry is based. Verse translations into English are also included. Separate indexes list authors, titles, and publishers, by name and location. A chart showing the annual rate of production of all editions and first editions, with a graph demonstrating the phenomenal surge in publication in 1808, complete the bibliography. Although there is no chronological index, many, but not all, of the authors are included in Jackson's *Annals of English Verse 1770–1835* (*Suppl.* BD243). Recommended to all libraries supporting research in English and American literature. —S.S.

CINEMA

Art on Screen: A Directory of Films and Videos about the Visual Arts. Compiled and edited by the Program for Art on Film, Nadine Covert, editor. New York: Program for Art on Film; Boston: G.K. Hall, [1991]. 283p., 32p. of plates. $65 (ISBN 0-8161-7294-3). LC 91-34548.

As the Preface indicates, this directory contains 914 films and video titles culled

from the 17,000 entries in the Art on Film computer database. Compiled by the Program for Art on Film, a joint venture of the Metropolitan Museum of Art and the J. Paul Getty Trust, the database provides detailed information about international film and video productions covering the fine arts (painting, drawing, sculpture), architecture, archaeology, photography, decorative arts, and related topics. To obtain information from the database, researchers may apply directly to the Program for Art on Film.

This directory is intended as a guide for film programmers, librarians, educators, art historians, and filmgoers who are concerned with the making or use of audiovisual programs on the visual arts. The art lover could also use this directory as a guide to the array of videos on art which are now available. In addition to the directory, *Art on Screen* includes five essays to provide context for the individual film listings and to stimulate thinking about the issues concerning the presentation of art on film. A filmography and a directory of resources for film programmers are included.

The work is intended to continue two out-of-print directories: the 1977 *Films on Art*, compiled and edited by the Canadian Centre for Films on Art for the American Federation of Arts, published by Watson-Guptill; and the 1952 *Films on Art*, edited by William M. K. Chapman, published by the American Federation of Arts. A third directory that may be of interest to this audience is *From Museums, Galleries and Studios: A Guide to Artists on Film and Tape* (*Suppl.* BE76).

Art on Screen is arranged in two sections: Documentaries with 709 entries and Features with 205. The preface outlines the following selection criteria for the Documentary section: films and videos released between late 1975 and 1990 that are in distribution in the United States and have been favorably reviewed by the Program for Art on Film staff, or by evaluation panels, or recommended by advisory panels, or honored by film festivals. *Art on Screen* is aimed at an adult audience. Films and videos on photography are excluded because they are covered by *Films and Videos on Photography*, published in 1990 by the Program for Art on Film. Architecture and landscape architecture will be treated in *Architecture on Screen* announced for spring 1994. Arrangement of both sections is alphabetical by title, usually in English unless the work is better known by its original title. Each annotated listing includes the following components: title, series title, running time, color, format, date(s), country, language, edition/version, producing agency, credits (producer, director, executive producer, writer, camera, art consultant, and, for the Features sections, cast), distributor, synopsis, evaluation, comments (by the staff of the Program for Art on Film or the Metropolitan Museum's Media Center), reviews, and awards.

The indexes include a separate subject index for each of the two sections, Features and Documentaries, director index for the Features section, name index (artists, critics, art historians, and others who figure prominently) for both sections; series title index with individual titles listed under each series title; and a source index with names, addresses, and phone/fax number of distributors.

Despite weaknesses such as the typefaces and design, the inexplicable lack of a director index for documentaries and of birth and death dates for names, and inconsistency in the use of headings in the listings, *Art on Screen* provides essential information for large public libraries and film and art collections.—K.A.K.

ARCHITECTURE

Curl, James Stevens. *Encyclopaedia of Architectural Terms*, with Illustrations by the Author and John J. Sambrook. London: Donhead, 1993 (1992). 352p. il. £45 (ISBN 1-873394-04-7).

There are a great many encyclopedias, dictionaries, and glossaries of architecture and its vocabulary to choose from, varying in scope or generality, size, historical coverage, and intended audience (*Guide* BE258-BD277, *Suppl.* BE122-BE124). This latest example most resembles the works of Cyril M. Harris in his

Dictionary of Architecture and Construction (*Guide* BE266, 2d ed. 1993), and his *Historic Architecture Sourcebook* (*Guide* BE269) in their line drawings and concise definitions; Jill Lever's and John Harris' *Illustrated Glossary of Architecture 850–1830* (*Guide* BE267) and Curl's earlier *English Architecture: An Illustrated Glossary* (*Guide* BE262, 2d rev. ed. 1986) for their coverage of British architectural terms, the subject of this work.

The *Encyclopaedia of Architectural Terms* offers 348 pages of definitions ranging from two words to four pages in length, with line drawings or photographs on almost every page. All examples are from British buildings, which makes this often dense work one most suited to specialized collections. A four-page select bibliography follows the glossary and supplements the works cited in the Preface.

The contents can often be very detailed; e.g., the term *Symbol* has 19 columns of hagiological symbols represented in and on churches and other buildings. Styles, such as Gothic, Gothick, and Gothic Revival are both described and illustrated, again in a British context. Building materials, ornamental details, elements, building types, and physical attributes are covered. The definitions are often thick with cross-references, signalled by arrows, which can make comprehension difficult. In other instances more guidance on locating the illustration of a built form is needed than an entry provides (e.g., the definition is under *hip-roof* but the illustration is under *roof*). There are no biographical entries; for these the author refers the reader to Colvin's *Biographical Dictionary of British Architects 1600–1840* (*Guide* BE294), again reflecting the British focus of the work. The book will be of most use to the serious scholar of British, European, and Classical architectural history —B.S.-A.

WOMEN'S STUDIES

Encyclopedia of Childbearing: Critical Perspectives. Edited by Barbara Katz Rothman. Phoenix: Oryx, 1993. 446p. $74.50 (ISBN 0-89774-648-1). LC 92-14975.

This useful interdisciplinary encyclopedia treats some 250 topics related to childbearing. Entries are well-written, with a strong feminist orientation. Topics range from discussions of childbearing in different countries, to feminist analyses of motherhood, explanations of medical procedures and drugs, and presentation of a variety of statistics. Although the majority of entries refer to issues relating to contemporary childbirth in the United States, entries also discuss goddess imagery, the language of birth, childbirth in science fiction, biblical and Talmudic images of pregnancy, and histories of all aspects of childbirth. Each signed entry includes a selective scholarly (three to ten items) bibliography of additional references. Arranged alphabetically with cross references and a good subject index. Recommended for all libraries supporting research on women, in spite of the fact that the encyclopedia chooses to sidestep the issue of surrogate motherhood, while including entries on open, closed, intercountry, and transracial adoption; birthmothers; and induced lactation. —S.S.

The History of Women and Science, Health and Technology: A Bibliographic Guide to the Professions and the Disciplines. Edited by Phyllis Holman Weisbard and Rima D. Apple. 2d ed. Madison, Wisc.: Univ. of Wisconsin System Women's Studies Librarian, 1993. 100p. Free.

This selective bibliography was first published by Susan Searing in 1988 to "aid colleagues in both designing new gender-centered courses . . . [and to] make the history of women in the professions more accessible to practitioners in the various branches of science, medicine, and technology."—*Pref.* This new edition nearly doubles the size of the first, including citations to more than 2,500 books and periodical articles published through 1992. There are six chapters treating women in the scientific professions, health and biology, home economics/domestic science, technology, children and young adult literature, and a section of general overviews. Each chapter is further subdivided by topic; the chapter on technology, for example, includes sections on

reference works, individual engineers and technologists, and reproductive technology. Annotations are provided "in cases where titles are not fully expressive of content, or to call attention to specific sections of the work," and an author index allows one to trace the work of specific scholars. The bibliography is free while supplies last and available from the University of Wisconsin System Women's Studies Librarian, 430 Memorial Library, 728 State Street, Madison, Wisconsin 53706. In late January the bibliography will become available via the Internet. For more information, please contact wiswsl@macc.wisc.edu.—S.S.

Huls, Mary Ellen. *United States Government Documents on Women 1800–1990: A Comprehensive Bibliography.* Westport, Conn.: Greenwood, 1993. 2 vols. $79.50 (ISBN 0-313-29016-4). LC 92-38990. Contents: Volume 1: Social Issues; Volume 2: Labor.

Congressional hearings, reports and documents, as well as publications of government agencies and commissions, and other public documents are listed chronologically within broad subject categories in this annotated bibliography. Among the twenty-one topics in the first volume are suffrage and political participation, homemaking and home economics, health, educational equity, divorce and child support, retirement and survivor benefits, violence against women, and female offenders. The chronological arrangement within topics is useful for tracing government activity (or lack thereof) across time. Topics included in Volume 2 range from employment discrimination, affirmative action and pay equity, to war work, the Women's Bureau, and child care and eldercare. Although government documents are relatively easy, if time-consuming, to identify and locate, this cumulative bibliography with its brief annotations, subject arrangement, and topical indexing will considerably help readers seeking material on topics related to women. There are no title or corporate author indexes so this may not be the place to verify an incomplete citation quickly.—S.S.

STATISTICS

Horn, Robert Victor. *Statistical Indicators for the Economic & Social Sciences.* Cambridge and New York: Cambridge Univ. Pr., 1993. 227p. il. $17.95 (ISBN 0-521-41333-8). LC 92-23005.

This text provides a description of all the major indicators used in the presentation, application, and analysis of statistical data in the social sciences. Although written by an Australian academic, the content focuses on current practice in Britain, North America, and the Western world in general. Considered semantically as metadata, these indicators are the intermediaries that link statistical observations with social or other phenomena; i.e, they bring the data to life.

Initially, the author provides a historical outline of indicators and describes their uses. Following this, the major techniques are explained in detail; included are ratios, scaling, correlation and regression, time series, and multivariate analysis. Each operation is placed in a comparative or historical context as appropriate.

Subsequently the development, economic, and social application of indicators are treated in separate chapters. Development indicators explained are those typically reported by various agencies of the United Nations, the International Monetary Fund, and the World Bank. The economic indicators are those characteristic of the more advanced economies, e.g., measurements of securities and financial markets' activities, business cycles, and international comparisons. Under social applications are included those for health, the environment, culture, war, and peacetime use.

There are no footnotes to the text, but there are references throughout to a substantive bibliography that may be used for expanded reading. Highly recommended for social science collections.—J.L.C.

HISTORY

Diccionario Biográfico e Histórico de la Revolución Mexicana en el Estado de

México. Coord. Roberto Blancarte. Zinacantepec: El Colegio Mexiquense; Toluca: Instituto Mexiquense de Cultura, 1992. 298p. il. (ISBN 9686341277).

The *Diccionario Biográfico e Histórico de la Revolución Mexicana en el Estado de México* is an elaboration of one section—the section for the state of Mexico—of the seven-volume *Diccionario Histórico y Biográfico de la Revolución Mexicana* published between 1990–92, in Mexico City by the Instituto Nacional de Estudios Históricos de la Revolución Mexicana. This latter work is a state-by-state inventory of biographical and historical information pertaining to the Mexican Revolution dating from the period 1890–1920, including information regarding battles, military campaigns, political groups, official congresses and meetings, publications, laws and legal tracts, political manifestos and popular songs. For each state the arrangement of information is the same: a short historical overview followed by dictionary entries on all the above categories arranged in one alphabetical sequence, and concluding with a chronology of events, a list of governors, a bibliography, and a list of archival repositories.

For the present work, the coordinator of the above project, Roberto Blancarte, has taken the section on the state of Mexico and enhanced it. To locate entries more easily, he has arranged them by categories; he has added illustrations in the form of historical photographs and reproductions of printed documents; and he has expanded coverage to include information about persons who participated in revolutionary activities in the state of Mexico but who were not natives of the state. The result is a well researched, clearly and attractively presented reference tool.

For those Mexican Revolution scholars whose research focuses on the state of Mexico and for those libraries that have little call for a seven-volume definitive biographical and historical dictionary of the Mexican Revolution, the *Diccionario biográfico e histórico de la Revolución Mexicana en el Estado de México* is a most useful title.—O.d.C.

Encyclopedia of the North American Colonies, Jacob Ernest Cooke, editor-in-chief. New York: Scribner, 1993. 3 vols. $280 (ISBN 0-684-19269-1). LC 93-7609.

The editor-in-chief, Ernest Cooke, recognizing that coverage of colonial America has often focused solely on the English colonies, has made a great effort to include the Dutch, Spanish, French, and occasionally Russian ones. Thus in the discussion of taxation, noted scholars write essays on taxation in each: the British, the Spanish borderlands, the French, and the Dutch colonies. The difficulty with the Russian colonies in Alaska and California appears to be the unavailability of source material although there are general articles on the Russian colonies in the *Encyclopedia*.

The appearance, layout, and arrangement are very similar to Scribner's *Encyclopedia of American Social History* (see the September 1993 column). The 274 topical and thematic essays by 193 contributors strive to present a "comprehensive coverage and a comparative analysis of the settlements . . . , [incorporating] recent changes of scholarly emphasis on the spatial, demographic, cultural, economic and social aspects of the colonial past."-*Pref.* The essays are arranged within broad topics: The American context, Old World expansion, Colonial settings, Government and law, Economic life, Labor systems, Racial interaction, War and diplomacy, Social fabric, Folkways, Families and the life course, Life of the mind, Science and technology, The arts, Education, Religion, Toward independence. Within a topic, for example under Families and the life course, there are shorter essays, such as Family structure, Sexual mores and behavior, Marriage, Childhood and adolescence, Old age and death, Native American families and life cycles; within these headings separate entries cover the British colonies, the Dutch colonies, the French colonies, and the colonies of the Spanish borderlands. The arrangement is all spelled out in the Table of Contents.

Each article is signed, well-written, has copious cross-references to other essays as well as to maps (there are thirty-two

maps), and always a bibliography of major studies mostly published within the last twenty years. The index is detailed with "see also" references, and the larger headings are broken down by subheadings; the major articles are identified by boldface type and the tables by italic type. The Chronology runs from 985 and Erik the Red to 1867 when Russia sold its North American possessions. The list of contributors includes the titles of the articles that each wrote.

And how does this work compare with *The Encyclopedia of Colonial and Revolutionary America*. John Mark Faragher, general editor (New York: Facts on File, [1990]. 484p.)? The Faragher has an emphasis on the English colonies, has short articles, has maps and portraits, only occasional bibliographies at the ends of the articles, and a subject index. There are "Topic Guides" which accompany major articles in order to identify shorter articles related to them; for example, the topic guide with the article for Frontier lists about thirty-five general articles and thirty biographical entries.

For ready reference the Faragher would be a quicker starting point but for in-depth research, scholars will be very glad to have Cooke's *Encyclopedia of the North American Colonies*.—E.M.

Epstein, Catherine. *A Past Renewed: A Catalog of German-Speaking Refugee Historians in the United States after 1933*. Publications of the German Historical Institute. Cambridge and New York: Cambridge Univ. Pr., 1993. 386p. $54.95 (ISBN 0521-44063-7). LC 92-568.

Catherine Epstein has compiled a biobibliography of "historians of modern Europe . . . , historians of Jewish and other religions' histories, historians of economics and law, historians of medicine, and historians of Oriental and ancient people" (*Introd.*) who emigrated to the United States between 1933 and 1940 from one of the German-speaking parts of Central Europe. To be included these scholars must have received formal training and have embarked on a career in Germany or the Austro-Hungarian Empire, taught history after their arrival in the United States, and have enough information available for Epstein to be able to reconstruct their careers.

For each scholar brief biographical information is given (birth, death, year of emigration, citizenship, education, professional work), a bibliography of works by the subject and also works about him (only five women appear), references to any published bibliographies for the person, and a note locating the archives.

Appendixes give a bibliography of general works on German-speaking refugee historians and a discussion of the historians for which little data can be found. The topical index is carefully done with boldface type for the individual entries; it includes references for the institutions with which the subjects were affiliated either in Europe or the United States.

This compilation will be extremely useful, of course, to the historiographer but also for the student just looking for biographical information on an author.—E.M.

Favier, Jean. *Dictionnaire de la France Médiévale*. Paris: Fayard, 1993. 982p. 750 FF (ISBN 2-213-03139-8).

This dictionary of medieval France is based on Jean Favier's considerable erudition as a scholar and archivist. He is the director of the Archives Nationales and author of a number of books for specialists and for general readers. The dictionary covers some ten centuries of the history of the French people, roughly spanning from the fourth to fifteenth centuries. Here the geographic boundaries are of secondary importance: from England to the Middle East, whether it be a crusade or the house of Lusignan in Cyprus, the book will take us wherever the French were active.

Concise and informative articles cover all aspects of medieval French society from the Church and the royal government systems to daily life such as clothing items and food. Each article ranges from a few lines to more than ten pages. The author omits on purpose any bibliography that he considers to have a lim-

ited utility because it would become obsolete rather quickly and most people are unlikely to have access to a specialized research collection. Good cross-references are throughout. Attractively illustrated with numerous monochrome photographs and thirty-two pages of color plates.—J.S.

Historical Atlas of the Middle East. G. S. P. Freeman-Grenville. New York: Simon & Schuster, 1993. 144p. 30cm. $55 (ISBN 0-13-390915-8). LC 93-9294/map.

There are surprisingly few up-to-date historical atlases of the Middle East. Some are more like picture books than atlases, others are limited to Biblical or Islamic history. *The Historical Atlas of the Middle East* is, therefore, a welcome addition to any collection of historical atlases in school and home libraries.

The work is intended for the general reader but would serve well for college libraries. Arranged chronologically, the 113 maps cover the period from earliest historical times to the present and treat the Middle East in the context of the Mediterranean world and beyond, ranging from Spain and Morocco to Afghanistan. One of the maps presents the percentage of Muslims in the total population for the countries of the world.

The information is presented in double-page spreads with maps on the right-hand pages in shades of gray and green accompanied by commentaries on the left pages which summarize the historical background. With a detailed table of contents, bibliography, and an index which includes cross-references to variant place names, it will prove very useful for scholars and for students.—J.S.

Slavic Studies: A Guide to Bibliographies, Encyclopedias, and Handbooks. Compiled and edited by Murlin Croucher. Wilmington, Del.: Scholarly Resources, 1993. 2 vols. (986p.) $150 (ISBN 0-8420-2374-7). LC 92-28912.

This impressive survey of more than 5,200 reference sources for the study of Slavic countries and cultures is clearly destined to become a classic. Reflecting many years of work, it lists major bibliographies, catalogs, directories, dictionaries, encyclopedias, gazetteers, handbooks, and various other reference works in English, French, German, and the Slavic languages. All works were examined by the author, and most entries include useful annotations concerning contents and the place of a work in the broader context of reference sources.

Two initial sections entitled "Area Studies" and "Eastern Europe and the Balkans" include works that treat the region as a whole (the first including the former Soviet Union, the second excluding it). Then follow individual sections devoted to Bulgaria, the former Czechoslovakia, Poland, the former Soviet Union, and the former Yugoslavia. At the end is a listing of general reference works that contain important material of relevance to Slavic studies, followed by author and subject indexes.

Croucher has done an outstanding job of assembling the key reference works in the field. Inevitably, as with any bibliography of this kind, each user will find one or two additional titles that she or he might have included. This reviewer, for example, would have added Alfonsas Šešplaukis's *Lituanica Collections in European Research Libraries: A Bibliography* (*Suppl.* DC162), Christoph Schmidt's *Ausgewählte Bibliographien und Bibliothekskatalog zur russischen Sozialgeschichte, 1861–1917* (see March 1993 column), and the eight-volume *Słownik Starożytności Słowiańskich* (Wrocław: Ossolineum, 1961–91), although only the last of these omissions could be described as a major oversight.

A more serious problem is the complicated arrangement of entries, which are filed in alphabetical order of subject headings within each country chapter, much as in a card catalog and, within a given heading, in a kind of chronological order that is not always easy to follow. This, combined with an absence of cross references in the text or index, makes the work somewhat difficult to scan and hinders quick look-ups of known items. A reader looking for the Polish literary bibliography, perhaps best known as "Nowy Korbut" (*Guide*

BD1304) for example, will not find it under that entry in the index even though the work is included in the bibliography. A user scanning the Lithuanian entries in the former Soviet Union section could easily miss Patricia Grimsted's *Archives and Manuscript Repositories in the USSR: Estonia, Latvia, Lithuania, and Belorussia* (*Guide* AB155), since it is listed elsewhere as a multitopic work, and no cross-reference is provided.

In short, to make the best use of this work, one must study it carefully, but the result is sure to be rewarding for scholars seeking to identify the tools needed to begin their research or to chase down a particular citation. It is likewise certain to prove a valuable tool for librarians in assessing the completeness of their Slavic reference holdings.

A work of this high quality and comprehensiveness invites comparisons with Paul Horecky's standard bibliographies of basic publications for Russian, East Central European, and Southeast European studies (*Guide* DC530, DC25, DC26 respectively). Like those works, it belongs in every library supporting research relating to the Slavic field, even ones without extensive Slavic collections of their own.—R.H.S.

NEW EDITIONS AND SUPPLEMENTS

The fifth edition of the *Columbia Encyclopedia*, edited by Barbara A. Chernow and George A. Vallasi (New York: Columbia Univ. Pr.; sold and distributed by Houghton Mifflin, [1993]. 3048p., $99; 4th ed., 1975, *Guide* AC9) has been updated to late 1992. The publisher estimates that 40 percent of the articles are revised. So a cursory look reveals that Bill Clinton and the Commonwealth of Independent States have entries; Kleistel, the new president of Austria, is there but not Vranitzky, who has the more important post of prime minister; population figures are updated to 1990; the card catalog and the library entries are the same as in the fourth edition with no mention of the impact of computers; the article on Russia stops with the formation of the USSR. "See" and "see also" references abound as do the bibliographies of book titles at the end of many of the articles. And finally the illustrations are very clear and well placed, mostly line drawings, maps, and charts.

The *Chicago Manual of Style: The Essential Guide for Authors, Editors, and Publishers* has been thoroughly revised (14th ed., John Grossman, managing editor. Chicago: Univ. of Chicago Pr., 1993, 921p., $40; 13th ed., 1982. *Guide* AA425) particularly to note the "role of computers in nearly every aspect of publishing beginning with the preparation of manuscripts . . . and continuing through editing, designing, typesetting, indexing and printing" (*Pref.*). Other changes include the increase in the number of examples, the heavily rewritten chapters on documentation, and the chapter on copyrights and permissions "which has been thoroughly revised by William Strong to reflect the most recent law and the most sensible current procedures."

The fourth edition of *African Books in Print*, edited by Hans M. Zell (London: Hans Zell, 1993, 2 vols., 1520p., $400, 3d ed., 1984, *Guide* AA603) lists 23,186 titles in English, French, or African languages "in print as of the end of 1991 from 745 publishers and research institutions with publishing programs in 45 African countries" (*Introd.*). These titles come from the list of books in the third edition. (1984) still in print, a cumulation of all titles in volumes 9–17 (1983–91) of *African Book Publishing Record* (*Guide* AA602), and new records received directly from the publisher. Excluded are government publications and serials (but not annuals, yearbooks, and irregular series).

The third cumulative index for volumes 1–35 of *Swedish Imprints 1731–1833: A Retrospective National Bibliography* (Uppsala: Dahlia Books, 1993. Unpaged; for the set see *Guide* AA1113) supersedes the indexes for volumes 1–15 and volumes 1–20. It provides indexing for main entries, added entries, including dedicatees, engravers, printing, publishing and bookselling firms, and for year and first word. The supplementary entries are addenda and corrigenda.

The second volume of James E. Walsh's *Catalogue of Fifteenth-Century Printed Books in the Harvard University Library* (Binghampton, N.Y.: Medieval and Renaissance Texts and Studies, 1993. 672p., 16pl. *Medieval & Renaissance Texts & Studies*, 97, $50) covers books printed in Rome and Venice and is indexed by author/title, by individual editor and translator, by provenance, and has a concordance for Hain/Proctor/Gesamtkatalog/Goff numbers (see *Guide* AA269–AA273, AA275, AA278–AA279). Volume 1 (1991) describes fifteenth-century books published in Germany, German-speaking Switzerland, and Austria-Hungary.

With its thirty-second edition, *Ulrich's International Periodicals Directory* (New York: Bowker, 1993. 5 vols., $395; for earlier editions see *Guide* AE10) is taking its first step toward worldwide newspaper coverage. Volume 5 of the set lists 7,000 daily and weekly newspapers published in the United States; it has its own index. Other changes in this edition of *Ulrich's* are the addition of flags to indicate titles registered with the Copyright Clearance Center, notations for titles available through document delivery from six services, and pointers for journals available exclusively online or in both forms: online as well as paper.

The third edition of the *World Encyclopedia of Library and Information Services*, edited by Robert Wedgeworth (Chicago: ALA, 1993. 905p., $200; 1st ed., 1980, *Guide* AB32; 2d ed., 1986, *Suppl.* AB11), maintains both the objectives and the scope of the two previous editions — to present a "one-volume overview of the history, major institutions and the distinguished personalities that have shaped the field" of librarianship (*Pref.*). Articles have been updated and revised and others added to reflect contemporary issues, e.g., cutting-edge technologies, new political realities (changes in Eastern Europe and the former Soviet Union were addressed but because of the unsettled nature of the area the attempt could only be partially successful). A large number of photos and charts, many of them new, as well as a sixteen-page color-photo section do much to enhance the visual appeal of the text.

New editions of three guides to library collections have appeared this year: *World Directory of Map Collections*, compiled by the IFLA Section of Geography and Map Libraries, edited by Lorraine Dubreuil (3d ed., Munich: Saur, 1993, 310p., *IFLA Publications* 63 £35; 2d ed. 1976, *Guide* CL303) which now lists 522 collections from 67 countries that have more than 1,000 maps; that is, unless it's the national library or archives or the only map collection in the country and these are included. *SCOLMA Directory of Libraries and Special Collections on Africa in the United Kingdom and in Europe*, compiled and edited by Tom French (5th rev. and exp. ed. New York and London: Hans Zell, 1993. 355p., $85; 4th ed., 1983, *Guide* DD45) is expanded to include the countries of Eastern Europe. The *Researcher's Guide to British Film & Television Collections*, edited by James Ballantyne (4th rev. ed., London: British Universities Film & Video Council, 1993. 226p., £12.50; 3d ed. 1989, 2d ed. 1985, *Suppl.* BG84) now describes 246 collections, including some not open to the public; for example, most of the BBC libraries are included because they are discussed in other guides even though the use is restricted. The Appendix has a directory for the Republic of Ireland and a selected bibliography which includes a section listing relevant *Parliamentary Papers*.

Also recently issued are several revisions of archival guides: *The Second World War: A Guide to the Public Record Office*, 2d ed., edited by John D. Cantwell (London: PRO, 1993. 218p., £10.95; 1st ed., 1972, *Guide* DA209) adds coverage of additional files which have been opened since early 1972; and the *Directory of Irish Archives*, edited by Seamus Helferty and Raymond Refaussé (Blackrock, County Dublin: Irish Academic Pr., 1993. 154p. £24.95; 1st ed., 1988) which has grown from 150 to 224 entries for libraries and archives in the Republic and in Northern Ireland.

The third edition of the *Directory of Religious Organizations in the United States*, compiled by J. Gordon Melton

(Detroit: Gale, 1993. 728p., $125; 2d ed., 1982, *Guide* BB68) has grown to 2,500 entries for religious groups, e.g., "relevant for-profit organizations such as religious publishers and consultants, . . . academic and historical organizations, social service agencies, groups engaged in social protest and change, centers nurturing spiritual life, . . . denominational archives and historical offices" (*Pref.*) but not "offices of Christian and denominational bodies covered in the *Encyclopedia of American Religions* [1989, *Suppl.* BB30]." Also omitted are social service organizations that serve only one community.

A related title is the *Encyclopedia of African American Religions*, edited by Larry G. Murphy, J. Gordon Melton, and Gary L. Ward (New York: Garland, 1993. 926p., $125), which provides entries for 1,200 African American religious leaders, denominations, and other organizations and movements with attention to the political impact of the Civil Rights Movement, the status and role of women, and the role of slavery in the development of religious life. The longer articles are signed and have bibliographical notes. It is well indexed with subject/organization/personal name entries and with a cross-index of all biographical entries by church or religious tradition with which a person is identified.

The *Handbook of the Linguistic Atlas of the Middle and South Atlantic States*, edited by William A. Kretzschmar and others (Chicago: Univ. of Chicago Pr., 1993, 454p., $45) proposes to "help users of the research materials of LAMSAS [*Guide* BC93] to judge the material accurately and appropriately . . . [by discussing] the history of the project and the aims of its designers, the communities and informants and how information was collected from them, and about several editorial stages in the processing of the information . . . , [with] also a few comments about interpretation" (*Pref.*).

The *Linguistic Atlas of Early Medieval English* begins with a Catalogue of Sources (Cambridge: D. S. Brewer, 1993, 186p. $53), compiled by Margaret Laing. It "aims to list all the potential sources for *LAEME*, that is, any surviving text written down in English between ca. 1150 and 1300. . . . [It can also serve] as a useful reference book for any study of English at this period whether its prime concerns be linguistic, textual, literary or historical" (*Introd.*). The arrangement is by repository and the annotation includes references to indexes, anthologies, further editions, other studies, and published facsimiles.

Richard Combs and Nancy R. Owen have revised the 1971 *Authors: Critical and Biographical References*, 2d ed. Metuchen, N.J.: Scarecrow, 1993. 478p., $49.50; 1st ed. 1971, *Guide* BD116). They have increased the number of authors from 1,400 to 3,317 and the number of books analyzed from 500 to 1,158 titles.

Literatur Lexikon: Autoren und Werke deutsche Sprache, edited by Walther Killy, is now complete in fifteen volumes (Güttersloh and Munich: Bertelsmann, 1988–93. 15 vols., 2520 DM). Volumes 1–12 treat German-speaking authors and anonymous titles, while volumes 13–14 concentrate on themes, methodology, movements such as humanism, farce, psychoanalysis and literature, and the Weimar Republic. The last volume is an index for personal names, anonymous titles, and topics.

Another German set now complete is the second edition of Gerhard Dunnhaupt's *Personalbibliographien zu den Drucken des Barock* (Stuttgart: Hiersemann, 1990–93. 6 vols. 4723p. 2000 DM per volume). This set provides a bibliography of original writings and translations for 200 major German seventeenth-century authors. Volume 6 completes the alphabet and has the indexes: name, pseudonym, publisher, anonymous title, place of publication, and topic.

The *New Princeton Encyclopedia of Poetry and Poetics*, edited by Alex Preminger and T. V. F. Brogan (Princeton, N.J.: Princeton Univ. Pr., 1993. 1383p., $125) has totally revised the enlarged edition (1974, *Guide*. BD314) adding "all those movements in recent criticism and literary theory that bear on poetry, . . . [as well as] increased coverage of emergent and non-Western poetry" (*Pref.*). The

bibliography has been much updated, there are more cross-references, and the editors have labored for a very clear prose style.

Coverage of the period 1625–1700 is now complete for the *Index of English Literary Manuscripts*, compiled by Peter Beal, with the volume for Nathaniel Lee–William Wycherley (London: Mansell, 1993. 672p. $500; for other parts of the title which have been published, see *Guide* BD546). Beal states that he hopes to issue an index for 1450–1700 with sections for titles, first lines of poems, personal names, manuscripts by location and which will also include supplementary entries and information gained since 1980.

The *Concise Companion to Classical Literature* (Oxford and New York: Oxford Univ. Pr., 1993. 575p., $18.95) is really a revised and abridged version of the *Oxford Companion to Classical Literature* edition of 1989 (*Suppl.* BD366) shortened by about one-third by omitting a few obscure mythological figures, "dropping or radically shortening the long general entries that are not specific to literature—such as agriculture, architecture, and army—and by recasting in pithier form those on the history, political and topographical background" (*Pref.*).

Geoffrey Parker, editor of the fourth edition of the *Times Atlas of World History* (London: Times Books; Maplewood, N.J.: Hammond, 1993. 360p., 37cm., $95; 3d ed., 1989, *Suppl.* DA30) has examined all the maps with particular attention to the prehistoric and post-1945 sections. Also revised is the twelve-page chronology which now covers from around 9000 B.C. to 1991–92.

Contrary to the usual practice, the latest cumulative index for the *National Union Catalog of Manuscript Collections* (*Guide* DA64) covers only four years, 1986 through 1990 (Hamden, Conn.: Shoe String, 1992. 597p.) because in 1986 a national database of archives and manuscripts was begun on RLIN. Thus we should all keep the 1985 annual index. NUC-MC has broadened its definition and now covers oral histories, sound recordings, audiotapes, paintings, video recordings, playbills, and screenplays.

Slavery and Slaving in World History: A Bibliography, 1900–1991, compiled by Joseph C. Miller (Millwood, N.Y.: Kraus, 1993, 576p., $90) is a major updating. The 19,351 entries are double that of the 1983 edition of 5,117 entries and more than six times as extensive as the 1977 (*Guide* CC381) which had 1,645. The bibliography now includes "secondary, scholarly works, written from the perspective of any academic discipline, reflecting directly on slavery or on the slave trade anywhere in the world and published in a Western European language, . . . substantial reviews and review essays, unpublished conference papers, encyclopedia articles of more than routine significance, articles in scholarly periodicals, popular history magazines, and serious journalism, chapters in multi-authored, edited collections, and books and monographs, translations and reprints. . . ." (*Introd.*).

Barry Klein's *Reference Encyclopedia of the American Indian* now in its sixth edition (West Nyack, N.Y.: Todd Publications, 1993. 679p., $125; 5th ed. 1990,

Suppl. CC226) is in four parts: (1) Source listings, which is a directory of relevant organizations, agencies, tribal authorities, etc., with a new chapter on arts and crafts shops and cooperatives; (2) Canadian listings; (3) bibliography of approximately 4,500 books in print presented by broad topics with a publishers index; (4) biographical sketches of 2,500 important Native and non-Native Americans prominent in Indian affairs, business, arts, professions, history.

Lionel V. Loroña is again editing the supplement to Gropp's *A Bibliography of Latin American Bibliographies* (*Guide* AA77), this time the fifth, for bibliographies published 1985–89 (Metuchen: Scarecrow, 1993. 314p., $39.50) plus a few items missed in the earlier supplements. This volume is arranged by broad topics subdivided by country with subject and author indexes and includes a list of serial titles cited/examined.

Scarecrow Press has begun another series of dictionaries of the history of a country: *European Historical Dictionaries* and they are leading from strength with Volume 1: *Historical Dictionary of Portugal* by Douglas L. Wheeler (Metuchen, N.J.: 1993. 288p., $37.50). Wheeler covers all facets of Portuguese history up to about 1990 with articles mostly about individuals, places, organizations, including a few longer survey articles under such topics as colonial empire or relations with other countries. But the real joy is the very extensive bibliography of Portuguese and English materials.

The *New Encyclopedia of Archaeological Excavations in the Holy Land*, edited by Ephraim Stern (New York: Simon & Schuster, 1993. 4 vols., 1552p., $295; 1st ed., 1976–78, *Guide* BB187) updates the coverage of the sites to 1991 and adds new ones, with signed articles by scholars, a bibliography, and an index of people and places. The Stern encyclopedia is, of course, the source for discussion of specific sites. For interpretation and extrapolation, one reference to which the reader will turn is the *Archaeological Encyclopedia of the Holy Land*, edited by Avraham Negev, 3d ed. (New York: Prentice Hall, 1990, 419p.; 1st ed. 1972, *Guide* BB188) for its articles on daily life, culture, technology, etc. Unfortunately Negev is not indexed nor does it have any bibliography.

CRL

Research Notes

A Conjoint Analysis of Reference Services in Academic Libraries

Gregory A. Crawford

Conjoint analysis has been used by market researchers for the development of many products and services. This article displays the potential of conjoint analysis for evaluating reference services in academic libraries. Six dimensions of reference service are included in the analyses: definitiveness of answer, in line wait times, service time, number of items given to patron, hours of service, and cost of service. Of greatest importance to users are cost of the service and the hours during which reference is available. Most users prefer that all reference services be free and that reference help be available at all times the library is open.

One of the primary goals of marketing is to provide products or services that will appeal to the preferences of consumers. Preferences, however, may vary among individuals and the final product or service offered must involve trade-offs of specific levels of the attributes desired by consumers. As a result, marketing strives to develop products or services that match the preferences of the consumers in such a way as to make them as appealing as possible to the largest number of consumers.

Similarly, one of the primary goals of libraries is to provide services that meet the information needs and desires of their patrons. In a recent *RQ* editorial addressing the promotion of libraries, Susan S. DiMattia says, "Our promotional efforts tell about how libraries make information affordable, accessible, and available. We keep telling the public how wonderful we are, but we don't ask the public what they need. We don't seem to listen too much, we're so busy talking."[1]

Because patrons will vary in their preferences for specific library services, a method to assist in developing services to meet the desires of patrons could prove to be a great benefit to library administrators when used in conjunction with statements of the mission and

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goals of the individual library. Conjoint analysis is one possible method of assessing such preferences.

As a technique, conjoint analysis can trace it roots to an article by R. Duncan Luce and John W. Tukey in 1964.[2] Luce, a pioneer in decision theory, and Tukey, a leader in statistical analysis, developed a mathematical way to transform user's rankings of arbitrary combinations of attributes into a scale of measurement, usually called utility. Thus, the importance of different features can be reexpressed on additive interval scales whose units are equivalent and whose zero point is arbitrary. The result is a model of the user's preferences when all the attributes are considered together. Such a model has ready application in many fields of the behavioral sciences. Marketing researchers have developed the technique of conjoint analysis, based upon the work of Luce and Tukey, and have used it heavily for the planning and development of new products.

In library and information science research, there have been only a few attempts to use conjoint analysis in the study of library services.

Within marketing research, conjoint analysis is based in large part on the work of Paul E. Green. Over the last two decades, Green and his coauthors have published numerous articles on the use of conjoint analysis in consumer research.[3] In 1971 Green and Vithala R. Rao introduced conjoint measurement as one method for quantifying judgmental data that could be useful for marketing researchers.[4] In a 1972 empirical study Green, Frank J. Carmone, and Yoram Wind concluded that additive conjoint models provided good descriptions of data from their study even when compared to descriptions produced by more complex models.[5]

By the late 1970s, conjoint analysis had spawned a growing body of theoretical literature, as reviewed and later updated by Green and Srinivasan.[6] Commercial uses of conjoint analysis have been reviewed by Philippe Cattin and Dick R. Wittink.[7] Cattin and Wittink identified 698 uses of the methodology by marketing research firms during the ten years following the first commercial project involving conjoint analysis in 1971. In their follow-up article, Wittink and Cattin documented at least 1,062 projects using conjoint analysis over the five-year period from 1981 to 1985, and estimated that there may in actuality have been approximately 2,000 such projects.

As an analytical technique, conjoint analysis strives to decompose or separate a set of predetermined "stimuli," which are attributes of some item (e.g., a commercial product or service) so that the utility of each level of stimulus or attribute can be inferred from the overall evaluations given by subjects.[8] The procedures used in particular conjoint analyses vary, but they all maintain a factorial design in which all levels of each stimulus or attribute can be compared to all levels of all other stimuli or attributes.

Richard M. Johnson, cited by many later articles, used a variation of conjoint measurement to study the value systems of individual consumers.[9] He called his method *trade-off analysis*. The basis of his argument rested on the assumption that the choice behavior of individual consumers is governed by trade-offs that "may be revealed by choices among product concepts having characteristics which are varied in systematic ways."[10] The result of such analysis is a model of preferences for product or service characteristics stated in the form of utilities for each attribute. It is then possible to determine the optimal configuration of product characteristics by selecting the highest rated attributes.

In library and information science research, there have been only a few attempts to use conjoint analysis in the study of library services. Michael Halperin and Maureen Strazdon examined preferences for reference services using conjoint analysis.[11] They used eight factors: completeness and accuracy of answer (4 levels), database serv-

ice (4 levels), interlibrary loans (2 levels), time needed to answer question (2 levels), attitude of librarians (3 levels), hours of reference service (2 levels), knowledge of librarians (2 levels), and wait for service (2 levels). The authors concluded: "Conjoint analysis is a technique that allows us to quantify some of the seemingly intractable qualitative aspects of library service. In doing so it represents a new and potentially fruitful method of relating library services to user requirements."[12]

In another article, Halperin discussed the potential of conjoint analysis to help inform library administrators of user preferences for information services.[13] Although they did not actually perform a study using conjoint analysis, Kenneth D. Ramsing and John R. Wish illustrated the use of the technique to determine the service preferences of library users, with their main example being online searching.[14] Thus, Halperin, Strazdon, and Ramsing and Wish have shown that conjoint analysis has potential applicability to library and information science. This potential has yet to be tapped.

In brief, conjoint analysis could be used to determine the attributes of a library or information service that are most important to library patrons. Utilities or "part-worth" weights can be derived for all levels of each attribute from reports by respondents completing the conjoint instrument. Attributes could then be segmented by different user groups in order to meet the desires of those groups as expressed by their preferences, for example, by gender, age, institutional affiliation, or amount of library use.

Since the derived part-worths or utility scores are additive, it should be possible to determine the level of patron satisfaction with current library and information services by simply adding the utility scores of those levels of attributes that the services currently possess. This number could then be compared to the total of utility scores of alternative schemes of services. A library with a larger total could be said to meet better the preferences of users while a library with a lower total could be said to be deficient in some area or areas. The area or areas of deficiency could then be ameliorated or eliminated by striving to provide the service attributes preferred by patrons. Conjoint analysis, therefore, could provide a method for predicting patron satisfaction if current services are changed in specific ways.

The major caveat about conjoint analysis is that it focuses on elicited consumer preferences among hypothetical choices. Such preferences may or may not translate into behavior. For example, preference for less expensive database searching may not necessarily mean that, if the library lowered fees for searching, more patrons would use the service. In addition, altering services to meet patron desires may necessitate restructuring of funding, reassignment of staff, changing library hours, etc. These may negate the projected increases in utility to patrons. Finally, since patrons differ on sociodemographic and psychographic variables, it may be difficult to change library or information services to meet the preferences of all patrons. Nonetheless, conjoint analytic techniques may be very beneficial in the marketing of library services to specific segments of the population or in establishing new services aimed at these specific user segments. It can help in decision making because it can provide data on patron preferences that were not obvious before.

METHODOLOGY

This research applied conjoint analysis to the user preferences for reference service in the academic library, similar to the research of Halperin and Strazdon. Six attributes of reference services were selected for this study: (1) *Definitiveness* refers to the likelihood that an answer to a question can be found in materials given to a patron by a librarian; (2) *Hours of service* describes the times during which a librarian is available to assist patrons; (3) *Cost of service* means the actual monetary charges that will have to be paid for interlibrary loan (ILL) and the searching of online databases (db searching); (4) *In line wait time* refers to the

length of time patrons must stand in line or wait for a librarian to assist them; (5) *Number of items* indicates how many physical items (books, magazines, maps, etc.) a librarian helps a patron find or gives to a patron in order to answer his or her question(s); and (6) *Service time* refers to the length of time it takes a librarian to answer a question or assist a patron. The levels of each attribute are given in table 1.

This study includes four attributes similar to those of Halperin and Strazdon, but utilizes a different number of levels for each: "Hours of service," "In line wait time" ("Wait for service" in Halperin and Strazdon), "Definitiveness" (called "Completeness of answer"), and "Service time" ("Time needed to answer"). The "Cost of service" attribute incorporates two of theirs: database searching and interlibrary loans. The rationale for this combined attribute is that database searching and interlibrary loan are the two services provided by the reference or public services department with which charges are often associated. Two attributes in the Halperin and Strazdon study, attitude of librarians and knowledge of librarians, are not included in the present study to avoid problems in patron judgments of librarian knowledge and attitude. One new attribute is included: number of items. The attributes included in the present study can all be, at least to some extent, quantified or measured within the library; librarian knowledge and attitude cannot be so easily quantified.

TABLE 1
REFERENCE SERVICES:
ATTRIBUTES AND THEIR LEVELS

1. Definitiveness
   - (1) definite answer
   - (2) possible answer
2. Hours of Service
   - (1) any time library open
   - (2) specified times only
   - (3) by appointment only
3. Cost of Service
   - (1) all services free
   - (2) less than $5 for interlibrary loan and database searching
   - (3) over $5 for interlibrary loan and database searching
4. In Line Wait Time
   - (1) less than 5 minutes
   - (2) 5 to 15 minutes
   - (3) more than 15 minutes
5. Number of Items
   - (1) 1 item
   - (2) 2 to 5 items
   - (3) 6 or more items
6. Service Time
   - (1) less than 5 minutes
   - (2) 5 to 15 minutes
   - (3) more than 15 minutes

To test for differences among students in academic institutions that vary in size and type, undergraduate students from three colleges and universities were surveyed: Rutgers University, Moravian College, and Warren County (New Jersey) Community College. In addition, Rutgers M.L.S. students taking a research methods class completed the conjoint instrument to provide comparative data for graduate students. All respondents were asked the following demographic questions: age, gender, major field of study, and the number of times they visit the library each week. A total of 100 usable instruments were collected. (See table 2 for a breakdown by institution.) Four instruments were incomplete and, therefore, unusable. Three of these were from Warren County Community College and one was from Moravian College. All of the unusable instruments contained incomplete data for the trade-off matrices involving the cost of service attribute.

Data analyses included *t*-tests for each level of every attribute to test for differ-

TABLE 2
BREAKDOWN OF
SUBJECTS BY INSTITUTION

Moravian College	32
Rutgers (undergraduates)	40
Rutgers (M.L.S.)	15
Warren County Community College	13
Total	100

ences between the genders and one-way analysis of variance tests for all levels of each attribute to test for differences between respondents stratified by age, institution, and frequency of library use. The .05 level of significance was used for all inferential statistical tests. Due to the total number of *t*-tests and ANOVAs included in the analysis, chance alone may account for approximately three significant results.

Respondents included 77 women and 23 men. Ages ranged from 18 to 46 (two subjects did not give their ages), with 66 percent of the total respondents being 18 to 21 years of age. Ages were grouped into the following spans: 18–20, 21–30, 31–40, and 41 and above. For the institutional ANOVA test, the groups are Warren County (New Jersey) Community College, Moravian College, Rutgers University undergraduates, and Rutgers University M.L.S. students.

The respondents used the library an average of 2.3 times per week (std. dev. 1.64), with a range of zero to ten times per week. Over half of the respondents (55) said that they used the library once or twice a week. Eight said that they never used the library or used it less than once per week. Thirty-six used the library three or more times a week. One respondent did not answer this question. For an additional ANOVA test of preferences, the respondents were classified into three categories of library use: (1) less than one use per week ($n = 8$), (2) one to two uses per week ($n = 55$), and (3) three or more uses per week ($n = 36$).

Academic majors of the undergraduate respondents represented twenty-nine different majors or combinations of majors. No discernible pattern of majors was observed. All the Rutgers undergraduate respondents were enrolled in a communications class and were majoring in either communication or a closely related field. The respondents from Moravian College and Warren County Community College were taking an introductory psychology class. Moravian respondents represented fourteen different majors while the community college students reported six majors.

The resulting sample of respondents constitutes a nonprobability, convenience sample, drawn from classes whose instructors agreed to participate. The lack of random selection of subjects may decrease the external validity of the results of the study. The total sample, however, does consist of a wide variety of students as evidenced by the large number of majors, the differences in ages, the differences in institution types, and the differences in library usage.

In the "full profile" approach, subjects are asked to rank descriptions of all possible combinations of levels of attributes of services or products.

Because of the length of time it takes to complete, the "full profile" conjoint approach was not used. In the full profile approach, subjects are asked to rank descriptions of all possible combinations of levels of attributes of services or products. One method of reducing the number of descriptions to be ranked is the use of orthogonal arrays of attributes in which combinations of factors are selected in such a way as to balance the contribution of each factor.[15] Because of the ease of instrument construction and administration, the two-factor method was chosen for this study.

The reference service preference data were collected by Johnson's two-factor-at-a-time method. The six attributes being examined yield fifteen different trade-off matrices, each of which was printed on a half sheet of paper (8.5 inches by 5.5 inches). See appendix A for a sample trade-off matrix from the conjoint instrument.

Respondents were given a data-collection instrument consisting of a cover sheet with directions, the fifteen trade-off matrices assembled randomly for each instrument, and a final sheet asking the demographic questions. Respondents were directed to rank their preferences for the combinations of the levels of two attributes represented in each trade-off matrix on either a one-to-nine or a one-to-six

TABLE 3
SUMMARY UTILITIES BY INSTITUTION

Attribute	1		2			3			4			5			6		
Level:	1	2	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Moravian College																	
Mean	.51	.04	.59	.35	.07	.91	.52	.07	.54	.31	.03	.19	.26	.31	.46	.28	.08
St. dev.	.36	.21	.37	.29	.22	.36	.24	.27	.34	.16	.09	.23	.18	.37	.27	.18	.17
Minimum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum	1.65	1.18	1.22	1.33	1.04	1.56	1.32	1.34	1.17	.70	.40	.70	.65	1.12	.88	.61	.61
Rutgers University—Undergraduate																	
Mean	.79	.03	.67	.34	.05	.93	.47	.06	.64	.36	.05	.14	.27	.28	.48	.24	.05
St. dev.	1.38	.10	.35	.25	.16	.39	.24	.21	.29	.17	.18	.23	.21	.27	.25	.14	.14
Minimum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum	7.99	.55	1.27	.78	.93	1.49	1.11	1.24	1.08	.62	.82	.73	.73	.91	1.05	.59	.54
Rutgers University—M.L.S. Students																	
Mean	.53	0	.77	.40	0	.99	.51	0	.77	.41	.01	.15	.40	.30	.49	.29	.01
St. dev.	.21	0	.25	.20	0	.25	.19	0	.24	.25	.04	.24	.24	.33	.28	.22	.03
Minimum	.04	0	.28	.05	0	.46	.22	0	.17	0	0	0	.03	0	0	0	0
Maximum	.85	0	1.09	.69	0	1.26	.98	0	1.07	1.07	.15	.69	.85	.91	.92	.69	.08
Warren County (NJ) Community College																	
Mean	.31	.03	.74	.30	.03	.77	.42	.04	.51	.37	.02	.25	.22	.18	.46	.30	.06
St. dev.	.31	.08	.42	.21	.11	.46	.27	.15	.40	.22	.05	.28	.17	.29	.34	.23	.17
Minimum	0	0	0	.01	0	0	0	0	0	0	0	0	0	0	0	.03	0
Maximum	.82	.28	1.35	.66	.38	1.34	.71	.55	1.34	.66	.14	.75	.61	.88	.91	.86	.57
Total Group																	
Mean	.60	.03	.67	.35	05	.91	.49	.05	.61	.35	.04	.17	.28	.28	.47	.27	.06
St. dev.	.92	.14	.35	.25	.16	.37	.24	.21	.32	.19	.13	.24	.21	.31	.27	.18	.15
Minimum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum	7.99	1.18	1.35	1.33	1.04	1.56	1.32	1.34	1.34	.80	.82	.75	.85	1.12	1.05	.86	.61

TABLE 4
RANGES AND RELATIVE IMPORTANCE OF EACH ATTRIBUTE

Attribute	Utility Scores	Range	% of Total Range	Rank
Cost of service		.86	27	1
All services free	.91			
Less than $5	.49			
$5 and over	.05			
Hours of service		.62	20	2
Any time library is open	.67			
Specified times only	.35			
By appointment only	.05			
In line wait time		.57	18	3.5
Less than 5 minutes	.61			
5 to 15 minutes	.35			
More than 15 minutes	.04			
Definitiveness		.57	18	3.5
Definite answer	.60			
Possible answer	.03			
Service time		.41	13	5
Less than 5 minutes	.47			
5 to 15 minutes	.27			
More than 15 minutes	.06			
Number of items		.11	4	6
1 item	.17			
2–5 items	.28			
6 or more items	.28			
Total Range		3.14	100	

scale, matching the number of pairs to be compared. Completion of the instrument took approximately twenty minutes.

Utility calculations were performed for each respondent using the trade-off program, part of the PC-MDS package of programs written by Scott Smith of Brigham Young University.[16] Other analyses were completed using SPSS-PC+ Studentware software.

RESULTS

Table 3 presents summary utility data for each of the three institutions involved in this research, with Rutgers University represented twice, once for undergraduates and once for M.L.S. students. The mean, standard deviation, minimum, and maximum of the students' utility scores are given for all levels of each attribute. In addition, the means, standard deviations, minimum, and maximum utility scores are given for the entire sample.

The ranges and relative importance for each attribute level are given in table 4. This table reveals that the total range of scores is 3.14. The importance of each attribute is given by the percentage that it contributes to this total range.

The cost of service is the single most important variable in the student perception of academic reference services, accounting for 27 percent of the total range of scores. Most patrons prefer that all services be free, including interlibrary loan and database searching. For comparison, in the Halperin and Strazdon study, cost of database service ranked second in importance and cost of

TABLE 5
SUMMARY OF SIGNIFICANT DIFFERENCES IN UTILITY SCORES

Group	Attribute	Level	t	p	d/f
		T-Tests			
1. Gender	Definitiveness	2 (possible answer)	2.36	.02	98
2. Gender	Number of items	3 (6 or more items)	2.57	.01	98
		Analysis of Variance Tests			
3. Age	Service time	1 (less than 5 minutes)	2.71	.05	3/94
4. Age	In line wait time	1 (less than 5 minutes)	3.75	.01	3/94
5. Library Use	Definitiveness	2 (possible answer)	3.51	.03	2/96
6. Institution	Variable = library use		3.89	.01	3/95

interlibrary loan ranked fifth. Together, these two factors represent 27.5 percent of the total range of scores yielded by their study. The second most important factor in the current research is the hours during which reference service is available (20 percent of total range), with reference service available at any time the library is open the preferred mode. This factor ranked fourth in Halperin and Strazdon, representing 10 percent of their total range. Tied for third place in the current study are definitiveness of the answer and in line wait time (18 percent each). Students overwhelmingly prefer a definite answer to a possible answer and also prefer to wait less than five minutes for service. In comparison, Halperin and Strazdon report that "Completeness of answer" ranked first in their study (34.5 percent of total range) and "Wait for service" ranked eighth (3.6 percent). In fifth place, service time accounts for 13 percent of the range, with most patrons preferring to have a librarian help them for less than five minutes. Halperin and Strazdon's factor, "time needed for answer," ranked seventh. Number of items given to the patron ranks sixth and provides little influence on the perception of reference service, accounting for only 4 percent of the range. No similar factor was included in Halperin and Strazdon.

Assuming that the utility scores are additive, the highest possible mean score for all attributes taken at one time is 3.54. The mean high utility score for each individual institution is as follows: 3.32 for Moravian College, 3.79 for Rutgers undergraduates, 3.95 for Rutgers M.L.S. students, and 3.29 for Warren County Community College. Since these scores are known, it would be possible to examine the reference services provided by the library in each of the studied institutions in order to compare their current level of service to the level of service preferred by patrons as indicated in the derived utility scores.

In addition, the utility scores can provide an indication of how satisfaction may change if an attribute of the service is changed. For example, if a library routinely charges a fee less than $5 for interlibrary loan or database searching, it can potentially increase patron satisfaction by .42 if these services could be provided free. On the other hand, if it became necessary for a library to charge for such services, overall satisfaction levels might be maintained if other attributes are changed so that their utility scores compensate for the potential reduction in satisfaction associated with costs.

T-tests were run on all levels of each attribute to determine if any derived utility scores were significantly different between the genders. Analysis of variance (ANOVA) tests were performed on the utility scores to assess differences of individual institutions, age groups of respondents, and library use groupings. *T*-tests and ANOVAs were also run on the

library use variable to determine differences by gender and by group of respondents. A summary of the statistically significant results is given in table 5.

Men indicated a small but significantly higher preference for possible answers (level 2 of the attribute "*Definitiveness*") ($t = 2.36$, $p = .02$, $df = 98$). The mean utility scores for both men (.09) and women (.01), however, were negligible. Both genders overwhelmingly preferred a definite answer (level 1 of the attribute "*Definitiveness*"), with men giving it a utility score of 0.62 and women 0.59.

The only other significant difference revealed by the gender-based *t*-tests showed that women report a higher mean utility score on level 3, "six or more items," of the attribute *Number of items* ($t = 2.57$, $p = 0.01$, $df = 98$). The mean utility score on this attribute level for women was 0.32 and for men 0.14. In general, the utility scores show that women preferred six or more items (0.59) to either one item (0.16) or two to five items (0.29). Men, in contrast, had higher utility scores on both one item (0.23) and two to five items (0.25) than on six or more items (0.14).

Frequent users of the library may be more savvy in obtaining the information they need and may be more aware of the variety of sources in which to find their answers.

The analysis of variance tests showed no significant differences between the respondents grouped by institution on any of the levels of the attributes. There is, however, a significant difference in library use between the groups ($F = 3.89$, $p = .01$, $df = 3/95$). Post hoc Scheffe tests reveal that this result is due only to the difference between the use of the library by the Rutgers undergraduates (mean = 1.8) and the Rutgers M.L.S. students (mean = 3.43). No other differences between the groups are statistically significant.

Analysis of variance tests by age categories reveal significant differences on two levels of attributes: level 1 of "Service time" and level 1 of "In line wait time." Level 1 of the attribute "Service time" indicates that the respondents preferred reference service at any time the library is open. ANOVA tests reveal a significant difference between the four age categories of this level ($F = 2.71$, $p = .05$, $df = 3/94$). Post hoc Scheffe tests, however, fail to reveal statistically significant differences among any two separate groups.

ANOVA tests result in a significant difference between the four age groupings on level 1 of the "In line wait time" attribute, i.e., a wait of less than five minutes ($F = 3.75$, $p = .01$, $df = 3/94$). Post hoc Scheffe tests show a significant difference in the utility scores of those aged 31 to 40 (mean = .83) and those aged 20 and under (mean = .52).

ANOVA tests were also run on the utility scores of each level of all attributes with respondents grouped by amount of library use. Significant results were obtained only on level 2 ("possible answer") of the attribute "Definitiveness" ($F = 3.57$, $p = .03$, $df = 2/94$). Post hoc Scheffe tests indicated that the utility scores of those respondents using the library zero times per week (mean = .15) differed significantly from those using the library three or more times per week (mean = .01).

DISCUSSION

The results of these analyses indicate that most college students agree on their preferences for academic reference services. As one might expect, they prefer a definite answer, reference service at any time the library is open, all services free, a less than five minute wait for service, two or more items, and less than five minutes of actually working with a librarian. Of these preferences, the most important factors, in ranked order, are the cost of the service, the hours of service, the length of wait for service, the definitiveness of the answer given, and the amount of service given. The number of items has little overall impact on preference.

Men and women express similar preferences on most levels of attributes as

indicated by their utility scores. Only two statistically significant differences emerged in the analyses. First, while women and men both overwhelmingly desire a definite answer, men are more accepting of a possible answer than women. Second, women prefer to be given more items than men, giving a utility score of 0.32 for six or more items compared to men's score of 0.14. Men prefer to be given one to five items.

Contrary to expectations, the institutional affiliation of respondents did not affect the utility scores. No significant differences in any levels of any attributes appeared in the analyses. A significant difference did emerge in the amount of library use with Rutgers M.L.S. students using the library significantly more than Rutgers undergraduates.

Analyses by age categories also failed to show many significant differences. The only significant differences discovered were between those aged 31 to 40 and those 20 and under. Older individuals indicated a significantly higher preference, as shown by their utility scores, for quick service, i.e., they wished to wait in line for no more than five minutes. This may be a reflection of their situation in life with more responsibilities. Most of the older students are employed full-time and are enrolled in school part-time. Thus, when they are at the library, they wish to have services readily available to them, and they do not wish to wait long for those services.

Finally, only one significant difference was found when the respondents were stratified by the amount of their library use. Those who used the library heavily (i.e., three or more times per week), gave a very low preference for a possible answer when compared to those who used the library very few times (i.e., less than once per week). Frequent users of the library may be more savvy in obtaining the information they need and may be more aware of the variety of sources in which to find their answers. Overall, the results of this study indicate a fairly stable pattern of preferences for reference services in the academic library.

CONCLUSION

Conjoint analysis provides a method for determining patron preference to guide librarians in structuring reference services in the academic library. While individual students will vary in their preferences for specific aspects of service, the means of the utility scores derived from the stated preferences of these individuals reveal which aspects of existing services should be emphasized or deemphasized. Similar research can be done to determine the preferences of other members of the academic community who may have different service preferences than undergraduates, especially faculty, administration, and graduate students.

Librarians should adopt and adapt techniques from other fields such as marketing in order to improve the effectiveness of libraries. This study shows that conjoint analysis can be useful and encourages us to search for other such tools.

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APPENDIX A
Sample Trade-off Matrices from Conjoint Instrument

"Cost of Service" means the actual monetary charges that you will have to pay for interlibrary loan (ILL) and the searching of online databases (db searching). "In Line Wait Time" means how long you must stand in line or wait for a librarian to assist you.

Cost of Service

In Line Wait Time	All services free	Less than $5 for ILL and db searching	$5 and over for ILL and db searching
Less than 5 minutes			
5 to 15 minutes			
More than 15 minutes			

Book Reviews

The Journal of Information Ethics. Jefferson, N.C.: McFarland, 1992– . Semiannual. $38 (ISSN 1061-9321).

Like any other profession, librarianship has a continuing need to reconsider, and if necessary revise, the ethical foundations of its mission. Practicing librarians draw on these principles to make pragmatic decisions about such matters as access to information, censorship, privacy, conflict of interest, and intellectual property. When it was launched in 1992, the *Journal of Information Ethics (JIE)* promised to provide a forum for discussion and debate of these issues through editorials, letters from readers, regular columns, scholarly articles, and book reviews. Robert Hauptman, the journal's editor, is the author of the book *Ethical Challenges in Librarianship.* Norman Stevens and John Swan, both frequent contributors, have been active in intellectual freedom circles, and McFarland is known as a publishing company with a social and political conscience.

Regrettably, the first three issues of *JIE* are very uneven. Although the author guidelines describe it as a "scholarly journal," it is actually a miscellany that includes not only practical advice, opinion, and research but also such unconventional pieces as a stream-of-conscious monologue on the theme of the homeless, an interview with an entrepreneur in the student term paper business, and a policeman's tips on library security. Publisher Robert Franklin's credo reflects the emotional tone of *JIE*'s editorial voice: "This journal is indicative of a devotion to an elitist, dying, even wrong-headed body of society: those who believe that there are ethics to be found in information." It seems to me that a journal devoted to philosophical and moral reasoning (ethics) should carefully distinguish itself from an organ that seeks to disseminate and defend particular points of view, even views as hallowed as "freedom of information" and "the right to read." I therefore hope that the editor will work to achieve a more consistent identity and quality for the journal than is evident thus far.

Three central themes emerge from the initial issues of *JIE*: (1) the philosophical basis of information ethics, (2) censorship, and (3) electronic information and its consequences. Even articles that focus on specific institutional or social settings such as the university, the workplace, or the public library, usually turn out to be dealing with one or more of these three fundamental themes.

Joseph E. Behar's "Critique of Computer Ethics: Technology as Ideology" defines what it means to talk about an ethics of information. He points out that "where traditional ethical approaches are 'personalistic' and address individualistic orders of moral responsibilities, the industrial effects of computerization involve macrosociological dimensions of social and organizational change. . . . One key area of ethical philosophy in studies of technology involves the critique of instrumental reason." Richard N. Stichler ("Ethics in the Information Market") rejects the currently dominant post-Enlightenment schools of ethics, utilitarianism, and deontology (the Kantian categorical imperative that requires moral standards to be universalizable). In their place, he recommends a context-based neo-Aristotelian model that focuses on ethical practices. These and other philosophical articles seem to be ultimately concerned with the problem of information as commodity, and with the social consequences of the market approach to information. This is a question

that affects us all, from the small public library to the federal government.

Compared with this vexing problem, the question of censorship or suppression of information appears more amenable to compromise, although it can be difficult in practice to balance conflicting political and social "goods." *JIE*'s writers come down on the liberal side of most of these issues. Contributors comfortably call for the publication of a Native American history of Little Big Horn, oppose the *Wilson Library Bulletin*'s firing of Will Manley, and attack Pat Robertson, Dan Quayle, left-wing censors, and state terrorism around the world. They have not yet dealt with the thornier issues of pornography and hate speech.

Ethical discussions of computerized information often concern the integrity, privacy, and security of data encoded in this most fluid of formats. The computer can make information more widely accessible, as Senator Patrick Leahy proudly explains in a solicited piece. But it also makes information difficult to control: subject to damage, mishandling, hidden surveillance, and unauthorized reproduction and revision. Articles on this subject, such as Carol Tenopir's sensible "Ethics for Online Educators," tend to be recipes for the prevention of abuse rather than probings of ethical dilemmas.

Articles on ethical questions in academia cannot be said to share any particular problem or approach. Perhaps the theme of dishonesty would cover plagiarism, hackers, and book theft. Conflict of interest is addressed in a study of faculty textbook selection and in Adam Drozdek's warning about corporate and military sponsorship of university research ("Pecunia Non Olet"). Again, the underlying philosophical question is the possible danger to the public good of an instrumental approach to the generation and dissemination of information.

This theme of the public trust emerges once again in Fred Whitehead's column decrying the sale of the rare book collection of the Kansas City Public Library. Whitehead delivers an unusual argument against the conventional wisdom that librarians should manage their collections without outside interference from the public.

An editorial in the Spring 1993 issue of *JIE* ends with this plea: "The point of all these warnings is to alert us to the dangers inherent in an increasingly technological society. Be wary! Individual freedoms require vigilance." The lesson contained within the journal's own pages is, I think, somewhat different. It points to the need for thoughtful exploration of the place of information (and of librarians) in the good ("ethical") life, both at the individual and the social levels.—*Jean Alexander, Northwestern University, Evanston, Illinois.*

Gattégno, Jean. *La Bibliothèque de France à mi-parcours: de la TGB à la BN bis?* Paris: Editions du Cercle de la Librairie, 1992. 259p. FF 125 (ISBN 27654-0512-3).

"J'en ai l'ambition et je le ferai": This is my ambition, and I will do it. This statement typifies the July 14, 1988, letter of François Mitterand to his prime minister, announcing, in his visionary manner, a new project in the series of "grands travaux" that includes the Grand Louvre and the Opéra de la Bastille. Mitterand's letter created the textual blueprint for what was to become the Bibliothèque de France (BdF), also known as the Très Grande Bibliothèque (TGB). Its few paragraphs contain a philosophical conception of a library that had yet to become a shared vision. This new library, according to Mitterand, would be a "very large library of a completely new type. . . . [I]t will cover all fields of knowledge, will be open to all, and will use the latest technical innovations to transmit information." The contrast with the venerated but traditional Bibliothèque Nationale (BN) could not have been stated more clearly: the BN in its cramped site on rue de Richelieu has one of the richest and most important collections in the humanities but covers the other branches of knowledge only from a historical perspective. The BN has also been dependent on the *dépôt légal*, and as a consequence is weak in foreign imprints. Furthermore, the library has restrictive access procedures

and is extremely cautious in adopting technical innovations.

Jean Gattégno traces the complicated history of this immense project in a book that does not hide the author's disappointment about how a revolutionary idea deteriorated into a fairly commonplace extension of the BN (the "BN bis" of the subtitle—which translates loosely as BN the Second). Gattégno, who worked closely with the Bdf Group in a variety of leadership positions, is able to draw on his intimate knowledge of the project. His book covers in detail the prehistory of the BdF, starting with the Francis Beck report in 1987 evaluating the problematic situation at the BN, and continuing up to 1992, when Gattégno was asked to leave the project. He has organized his material into three major parts: a *historique* or chronology outlining very carefully and as objectively as possible the different reports and memoranda, documenting the changes in the ongoing project, and the reactions in the French and foreign press. For the uninitiated reader unfamiliar with the different ministerial agencies, the reporting structures, and the various shades of French bureaucratic language, this section might be quite tedious, but it is in fact a very rich historical source. In the second and third parts, *problématique* and *critique et autocritique*, Gattégno delves into issues such as the infighting within the bureaucracies, the turf wars between the BN and those creating the BdF, the petty personality issues, the financial restrictions the project ultimately had to accept, the mistakes made by the BdF team, and most importantly the different philosophical conceptions held by some of the powerful constituencies involved with the presidential project.

The book should be especially illuminating to those on this side of the Atlantic because North American librarians and scholars have mostly been hearing the voices of the critics. By now, we are all familiar with two hot buttons: the infamous break or *césure* of the print collection dividing pre/post 1945 imprints between the BN and the BdF, and the conservation hazards of the four glass book towers. These problems, according to Gattégno, were recognized and resolved by the BdF team by transferring the whole print collection of the BN to the BdF and by redesigning the towers to protect the books from the impact of significant temperature differentiations. Nonetheless, the critics of the project used these flaws to discredit the broader purposes of the BdF. The debate on these broader purposes was never really aired, and Gattégno tries to set the record straight. The book also quite pointedly sketches a Parisian political and intellectual milieu in which media-savvy intellectual mandarins, eager to protect their interests, can wage a very effective media offensive. Dominique Jamet, the president of the BdF project, was never accepted in this milieu because of his status as a mere journalist, and especially because his appointment had been perceived as a slight against Emmanuel Le Roy Ladurie, world-famous historian and the administrateur-général of the BN. Gattégno, in very reasoned terms, illuminates the role Le Roy Ladurie has played in the media campaign and his gutting of the more unconventional aspects of the BdF.

Gattégno has a substantial background in the public library sector—for eight years he had been, within the Ministry of Culture, in charge of the public library system in France—and he understood the revolutionary nature of Mitterand's vision within the French library context. To start collecting aggressively in the social sciences and physical sciences, and to open these research collections to all, might not seem revolutionary in the United States, but to some in France it constitutes a reenactment of the storming of the Bastille. Furthermore, the plan to host conferences and lecture series in the BdF complex would increase even further its nonscholarly component. Le Roy Ladurie referred in this context to "l'effet Beaubourg" that would plague the BdF, a reference to the street entertainment outside the Centre Georges Pompidou, which houses the Bibliothèque d'Information (BPI), a very ac-

tive public library. The commitment of the BdF to collect other media, to start an aggressive effort to digitize texts and manuscripts and to serve as an information node for the wider distribution of these electronic documents to public and university libraries within France and to major research libraries abroad, led one critic (Jacques Julliard) to exclaim that the "BdF would become the Disneyland of reading."

In 1992 Gattégno was asked to leave his position, an indication that the direction of the project was about to change significantly after the failure of various attempts to compromise (e.g., establishing separate reading rooms for the general public and for researchers). In January 1994 Dominique Jamet was also replaced. More importantly, the BN and the BdF were merged into a single administrative entity: the Bibliothèque Nationale de France (BNdF). Emmanuel Le Roy Ladurie was appointed president of the Conseil Scientifique, an announcement that will not have come as a surprise to Gattégno. In his estimation, the dismantlement of a "library of a completely new type" to a *BN bis* had been completed.—*Kurt De Belder, New York University, New York, New York.*

Musmann, Klaus J. *Technological Innovations in Libraries, 1860–1960: An Anecdotal History.* Westport, Conn.: Greenwood, 1993. 245p. $55 (ISBN 0-313-28015-0).

Librarians assume too easily that today's technological challenges and promises represent something new for libraries. We look back nostalgically to the stability of the library world prior to the 1980s (the era of bibliographic utilities, online catalogs, CDs, CD-ROM), or the 1970s (when circulation systems, online searching, and videocassettes came into use), or the 1960s (when LPs and early automation were introduced). Klaus Musmann reminds us that technological change is not a phenomenon of the past thirty years: he argues that changes around the turn of the century were quite as revolutionary as anything in the present. He cites as examples the impact of cheap, safe artificial light; proper ventilation for large library spaces; even the standardized 75-by-125 millimeter catalog card. Musmann points out that librarians have always faced technical difficulties, e.g., how to disinfect returned books, how to manage newspaper collections before microfilm or how to deal with the "library hand" before typewriters were widespread.

Nor is the feeling that the printed book is doomed anything new. In 1918 Homer Croy was convinced that print would be replaced by motion pictures. In 1926 Melvil Dewey had us outgrowing books within fifty years. In 1936 Stephen Gaselee "expressed some doubts whether the book would survive as a popular medium for the diffusion of knowledge during an age of broadcasting and television." In 1938 Alice Farquhar asserted that radio had decreased public library circulation, that people could not be expected to read books and magazines on current affairs when the radio offered "last minute information fascinatingly presented," and asked "Why read a mystery when you can get your hair to stand on end, just passively listening to 'Lights Out'?" Similarly, G. D. Richardson contended in 1951 that television would entirely replace recreational reading. Since the 1930s librarians have suggested that microform publications would or should replace books—and in 1935 Louis Hewitt Fox wrote that "the average reader prefers the film to the book."

Musmann begins his book with a discussion of technological innovations, revealing a somewhat downbeat attitude about the significance of libraries: surely it is an overstatement that public libraries are no longer "an important force in the leisure time activities of the public-at-large" in many cities and towns. Still, the book offers its own grounds for optimism. The second chapter, "Librarians in an Age of Technological Change," deals not with the present but with the period from 1887 through 1958. If librarians survived that age and used technological change to improve library holdings and services,

why should we do less in the next fifty years?

Six chapters deal with varieties of technology: the physical environment of the library (lighting, ventilation, and the spread of disease); streamlining library processes (appliances, contrivances, and gadgets); photographic processes; new communications devices (telephone, phonograph, and typewriter); the library and radio; and motion pictures and television. Musmann concludes with a chapter on the future of the library and its technology.

This book is indeed "an anecdotal history," much of it derived from library periodicals from the century under consideration (1860–1960). The book is full of quotations and comments, footnoted to a fare-thee-well. The style is sufficiently informal to be readable, and Musmann does a good job of organizing and commenting on the array of sources. While most of the discussions lack in-depth statistics to place specific anecdotes in context, this weakness is almost certainly a realistic reflection of the library world's sketchy historical record. Do we really know how many libraries had in-house radio broadcasts in 1936—and do we have any idea how many libraries currently circulate CD-ROMs?

After reading this book, I have a much better sense of the field's technological concerns through the century before I began to work in libraries. It has been clear for some time that ongoing change and increasing complexity—the continued importance of print, but also an array of new media and access mechanisms—are the only plausible future for libraries. This book reminds us that libraries have never been the stable, unchanging institutions that some people assume, and that there have always been commentators looking for a single, simpler future that was never in the cards.

If you are concerned about the future of the book and the ability of libraries to cope with the onslaught of technology, you should read this book. Yes, it is library history—but it is history that provides a worthwhile perspective on today's fashion for doom-crying and self-doubt among librarians.—*Walt Crawford, The Research Libraries Group, Mountain View, California.*

Women, Information Technology and Scholarship. Ed. H. Jeanie Taylor, Cheris Kramarae, and Maureen Ebben. Urbana, Ill.: Center for Advanced Study, 1993. 127p., $10 + $2 shipping and handling (ISBN 1-882875-00-1).

Academic libraries have succumbed to a romance, indeed an obsession, with technology. Yet how often do we stop to contemplate the profound implications of this information "revolution"? Do we ever pause to ask what should be critical questions: "Revolution by and for whom"? Do we dare to link this brave new library and information world with our professed commitment to "diversity" and equity? As we welcome the potential of powerful new information technologies and the resulting changes in the nature of scholarly research and practice, we must also pay close attention to the power relations embedded in their development, deployment, and use. All the more welcome, then, is this volume which tackles head on the profoundly political nature of information technologies and the implications for university policy.

In September 1991, at the University of Illinois Urbana-Champaign, an interdisciplinary group of thirty-three faculty and academic professionals, including five librarians, gathered around a common goal to "help insure that new communications technologies will be structured and used in ways beneficial and equitable for all." *Women, Information Technology, and Scholarship*, sponsored by the Center for Advanced Study, draws from the first year (1991–92) of their ongoing colloquium.

Four articles by colloquium participants or collaborators anchor the volume, followed by six colloquium digests and an extensive bibliography. In the first article, Maureen Ebben and Cheris Kramarae offer an overview highlighting issues of particular concern for women in four key areas: difficulties en-

countered by women working in the various electronic forums; training methods; disappointed promises of information technology in education; and electronic publishing. Dale Spender, whose previous work documents the absence of women in dominant culture and recorded knowledge, here compellingly extends her arguments about the politics of knowledge production and distribution to electronic media. Throughout the print era what has been considered legitimate knowledge and scholarship has always been gendered. How will the determinations be made about what knowledge gets encoded and distributed in electronic form and by whom? It is only in the past three decades, the very time that print is giving way as the primary medium of information, that women have assumed positions of power and influence in alternative and mainstream publishing. While listservs of particular interest to women and minorities proliferate, in the ascendent electronic media generally (database producers, software and hardware companies, television, radio), women and members of other subordinated groups exert limited if any control over the means of information/knowledge production and dissemination. Despite the utopian predictions about democratization of information through electronic communication across space, time, and social categories, computer technology in many ways remains one of the last male (read white, educated) bastions.

In the article most obviously tied to libraries, Ann Okerson (Association of Research Libraries), addresses the current "crisis" in academic publishing (high prices, high volume, and slow distribution) and its attendant dilemmas and challenges. Arguing that "the fundamental issue in regard to holding and sharing information resources in the electronic environment, as it turns out, may be one not so much of technology as of ownership," she offers cogent, concrete suggestions for mechanisms to ensure that ownership is retained by scholars. This will preserve, she maintains, the central role of colleges, universities, and libraries in knowledge production and distribution. While Okerson regrettably ignores the gender implications here, reading her piece against the first two articles in the volume elicits thought-provoking questions about how information paradigms, practices, and technologies are shaped by prevailing values and power relations.

The last article, by Cheris Kramarae and H. Jeanie Taylor, takes up the hotly debated question of women's and men's participation on electronic networks, focusing on the problems often encountered by women: marginalization and monopolization by men, sexual harassment, pornography or technotitillation. The "chilly climate" for women and minorities at most universities has been well documented. Now blowing through cyberspace, this silencing chill has serious consequences not only for interaction on nets but also for scholarship and the academy in general. If electronic technologies often "replicate or intensify previous problems," universities, the authors argue, are uniquely positioned to "institute change at 'home' and thus to influence change in the larger world." Much of the article outlines specific suggestions for policy and behavior changes to ensure that networks provide a forum for open debate for everyone, including women and other marginalized groups, and that university rhetoric about diversity and equality extend to equity in practice—even in cyberspace.

The six "digests" provide snapshots of additional key issues raised in the colloquium, ranging from concepts of agency, privacy, and ownership in the information age, to feminist computer networks, to a vision of the ideal information technology. The volume concludes with an impressive annotated bibliography on women and information technology, covering the all-too-few feminist works but also a range of current discussions and arguments in the field. Indeed, this forty-page bibliography would provide an excellent point of departure for a full course or seminar on this topic—one way academic librarians

might take the lead in mapping these new frontiers.

If this volume represents a forceful social critique of the current state of information technologies in academia, it is no Luddite call for return to an idealized pretechnological past. In fact, it is their clear recognition of the powerful potential of new information technologies that motivates colloquium participants to demand that these be fully realized for women and other marginalized social groups. In the contested terrain of information technology, it is only by addressing the embedded social relations that this technolandscape of enticing promises will prove more than an exclusive preserve.—*Joan Ariel, University of California, Irvine.*

White, Howard D., Marcia J. Bates, and Patrick Wilson. *For Information Specialists: Interpretations of Reference and Bibliographic Work.* Norwood, N.J.: Ablex, 1992. 310 p. $24.50 (ISBN 0-89391-983-7).

This collection of articles by three library school faculty focuses on three aspects of information work. Each is the topic of one of the book's three main sections: reference work, bibliographic writing, and literature searching. In the short fourth and final section, Howard White sets out to provide an integrated view of what information specialists do.

In his introduction White says that the authors "offer . . . insights into human aspects of the profession [i.e., information work] that are seldom treated elsewhere." With a few exceptions his promise, however, goes largely unfulfilled. While some interesting notions emerge, it is difficult on the whole to say to whom his book would appeal. It lacks a solid focus, and the reader moves through a somewhat bewildering array of topics with quite different approaches.

Five of the book's eleven chapters are rewrites of articles that appeared over the years in journals. There is a short article on the nature of a reference book, replete with charts and empirical data, a speculative treatise on the uniqueness of librarians and information specialists, and several articles about techniques for conducting online searches. At one point in the book we have a discussion of Karl Popper's "world 3" theory as it relates to information science, while at another we get a discussion of online versus manual database searching infused with neologisms such as *BIBBLE*: "To BIBBLE is to look for a bibliography already prepared, before launching into the effort of preparing one."

What theme or themes unite these disparate pieces is far from clear despite White's claim that "there is a great deal of theme-passing from author to author." The articles on literature searching seem to have a specialized pedagogical purpose that little serves the general interpretive ambitions of the book. Many of the book's observations seem to be commonsense notions recast in an academic parlance sufficiently ponderous so as to make them sound insightful. "Libraries, as guarantors of 'permanent publication,' ratify the choices of publishers generally, but of some much more than others."

In the final chapter, however, White makes some observations that raise important questions about librarianship. He writes that most librarians, once finished with school, do not read library and information science research literature because "they do not need to; or, as they would claim, because it does not tell them what they need to know." A remarkable admission! If it so, why, we might ask, should librarians read this book? What does White's observation suggest about the relevance of professional research to professional practice? If a librarian, upon completing formal training in the library and information science, has little need for the research of library and information science, then what is its purpose? What is it about the whole professional educational endeavor that makes library and information science relevant to formal education but irrelevant afterward? Nevertheless, White's observation is, in my view, the most important of the book and raises far-reaching questions.

White then immediately adds something that makes the above an even more interesting and pressing issue. "The

mandate of librarians to keep certain segments of external memory alive is essentially a political task, calling for knowledge that is ethical and situation-specific rather than technical and general in the style of L&IS research." This claim, if true, complicates both our view of the profession and our notion of the kind of education that is most appropriate for librarians. Librarians, according to this view, would be ethicists, involved in making important value judgments in the administration of institutional resources. Critical to their success would be a deep understanding of the functions and limitations of the particular institutions they serve, hence the importance of the"situation-specific" nature of their knowledge. Some of the important issues in current librarianship seem to illustrate this view. Right to know, access versus ownership, and resistance to censorship are major concerns involving questions of social ethics insofar as library services are valued as moderately scarce resources to which people can make moral, political and legal claims.

It is disappointing that White does not develop his idea of librarian as ethicist. He does say that "aside from their bibliographic expertise, the 'science' of working librarians is policy . . ." Here then reemerges a tension and ambiguity between the librarian as technician; i.e., information specialist, and librarian as humanist; i.e., as ethicist and public policy advocate. An exploration of this tension might have some bearing on the phenomenon of library school closings in recent years—since the closings are due, many librarians argue, to fundamental misconceptions about the nature and value of the profession. *For Information Specialists* may be of use and interest for library school students, but for librarians its points of interest are few.—*Stephen P. Foster, Central Michigan University, Mt. Pleasant, Michigan.*

Rosenberg, Jane Aikin. *The Nation's Great Library: Herbert Putnam and the Library of Congress, 1899–1939.* Champaign, Ill.: Univ. of Illinois Pr., 1993. 235p. $39.95 (ISBN 0-252-02110-4).

Jane Rosenberg has written a fine book on Herbert Putnam's forty-year tenure at the Library of Congress (LC). It is a solid and readable history of several complex issues: LC's role in American library development; the vicissitudes of Congressional support; the library community's reactions to Putnam's management of LC services to libraries; and the role of LC in the development of librarianship as a profession. In relatively few text pages (165), relatively many pages of notes (51), nineteen period pictures, and a graceful "Essay on Sources," the author bestows equal measures of scholarship, but somewhat uneven insight on each of her four stated themes.

The book is a rewritten version of the author's 1988 dissertation, "The Library of Congress and the Professionalization of American Librarianship, 1896–1939." Rosenberg's discussion of this theme is definitive. Similarly, her treatment of the intertwined topics of LC's role in American library development and Putnam's vision of LC as the national library may be confidently labeled "required reading"

for future students and scholars. The "ebb and flow of congressional support for LC activities" is documented and put in historical context—World War I, the Depression, etc.—but the conclusion that Putnam "was remarkably successful at building and sustaining LC services over a forty-year period . . ." is debatable. The account of librarians' reactions to the limits imposed by Putnam on services to the library community provides ample evidence of both overlong patience and ineffective impatience by ALA and library leaders with LC, particularly during Putnam's later years. The story behind Putnam's leadership of the Library War Service reveals much about his administrative style and the prevailing paternalistic attitudes about women and wartime library censorship. The effect on LC (if any) of Putnam's two-year hiatus as director of the War Service is not clear. From heady, patrician start to gritty, bureaucratic-authoritarian finish, Putnam sharply distinguished among four LC clienteles: Congress, federal libraries, scholars, and other libraries. Rosenberg shows clearly how Putnam cut the pattern and set the pace for the future of each. But she focuses primarily on LC's assistance to other libraries.

Several of the book's eight chapters deal at length with the evolution and operation of LC cataloging and card services. The work's overall conclusion rests convincingly on these "technical services" issues:

> While librarians everywhere could describe the physical attributes and contents of books and devise classifications that placed like items together, they had no means of linking their collections until the Library of Congress promoted a common denominator of catalog description and disseminated standardized cards. Through depository catalogs and the Union Catalog, the Library enabled American researchers to locate materials held by many libraries . . . . The scholarly world gained a map of American resources and keys to their organization.

General readers may be overwhelmed by more than they care to know about the early history of the LC card service and American cataloging practices. Technical service historians may grumble at the lack of this or that comparative detail. Too bad! The book deserves wide distribution and close reading. For "there be dragons here," and Rosenberg has chronicled their seedtime. For then and there—during the forging of "standard" nonstandard processing practices in American libraries; during the growth of a plantation mentality by and toward library workers; during the debate on the proper training for librarians; during the calcification of the LC-ALA-ARL minuet—is the story of how our profession got to be the way we were, and are.

Asserting that "few scholars, . . . have addressed the development of librarianship through the organization and development of libraries," Rosenberg has written a book "to offer a national outlook on the effort to organize and record materials and demonstrate why and how . . . [LC] became the center of a virtual network of American libraries and librarians." Mission accomplished.—*Larry X. Besant, Morehead State University, Morehead, Kentucky.*

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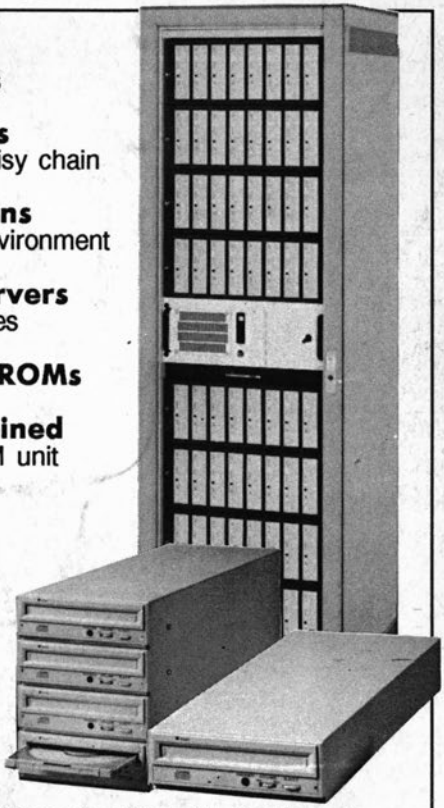

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